

USPTO TRANSMITTAL POSTCARD (Patent)

Mailing date: August 11, 2008      Atty Docket No. 26016.0.1  
Serial No.: 09/714,841      Filing Date: November 20, 2000  
Applicant(s): Pamela G. Layton et al.      Group Art Unit 2683  
Title: INFORMATION MANAGEMENT NETWORK FOR AUTOMATED DELIVERY OF  
ALARM NOTIFICATIONS AND OTHER INFORMATION  
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1. Transmittal Form;
2. Request for Certificate of Correction (3  
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3. Attachments A-D; and
4. Form PTO/SB/44.

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## TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission


Application Number	09/714,841
Filing Date	November 20, 2000
First Named Inventor	Pamela G. Layton
Art Unit	2683
Examiner Name	C. Tran
Attorney Docket Number	26016.0.1

### ENCLOSURES (Check all that apply)

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|


Remarks

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Burns & Levinson LLP		
Signature			
Printed name	Jacob N. Erlich		
Date	August 11, 2008	Reg. No.	24,338

### CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:


Signature			
Typed or printed name	Jacob N. Erlich	Date	August 11, 2008

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**CERTIFICATE OF MAILING**

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Jacob N. Erlich  
Reg. No. 24,338

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: Pamela G. Layton et al.  
Application Serial No.: 09/714,841  
Filed: November 20, 2000  
Patent No.: 6,829,478

Examiner: C. Tran  
Group Art Unit: 2683  
Attorney Docket: 26016.0.1  
Issue Date: December 7, 2004

For: INFORMATION MANAGEMENT NETWORK FOR AUTOMATED DELIVERY OF  
ALARM NOTIFICATIONS AND OTHER INFORMATION

Burns & Levinson LLP  
125 Summer Street  
Boston, MA 02110  
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To: Attention Certificate of Corrections Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REQUEST FOR A CERTIFICATE OF CORRECTION UNDER 37 CFR 1.322**

Sir:

In the matter of U.S. Patent No. 6,829,478 B1 issued December 7, 2004, prior to paying the first maintenance fee, a comparison of same against the files of the attorney of record indicates that the errors described in the attached Form PTO/SB/44 were inadvertently made by the U.S. Patent and Trademark Office (the "Office").

Specifically, the errors described in the attached Form PTO/SB/44 are of a clerical nature and are described below.

In the drawings: please replace Figures 3, 4a and 4b of the above-identified issued patent with the attached Figures 3 and 4 as included in Attachment A.

## REMARKS

Under 35 U.S.C. 254, whenever a mistake in a patent, incurred through fault of the Office, is clearly disclosed by the records of the Office, the Director may issue a certificate of correction stating the fact and nature of such mistake, under seal, without charge.

On January 5, 2004, Applicants filed a Preliminary Amendment (copy enclosed as Attachment B) in the application which included changes to the drawings. Specifically, on page 34 of the Preliminary Amendment, Applicants stated, "Please delete the existing drawings and substitute therefore the attached substitutes. Red lined copies of the existing drawings are provided as Appendix C." Between pages 34 and 35 of the Preliminary Amendment, Applicants included substitute drawing sheets 1-4, as can be seen in Attachment B.

Appendix C to the Preliminary Amendment contained copies of originally-filed Figures 1-12, marked as being crossed-out (as can be seen in Attachment B). These crossed-out Figures 1-12 were stamped by the Office of Initial Patent Examination (OIPE) as having been received on January 8, 2004 (copies enclosed as Attachment C). The OIPE also stamped each of the substitute sheets 1-4 as having been received on January 8, 2004 (copies enclosed as Attachment D). Nevertheless, the issued ribbon copy of Patent No. 6,829,478 contained correct replacement Figures 1 and 2, but the incorrect Figures 3, 4a and 4b. In addition, it can be clearly seen that in Column 6, lines 24-30, the issued patent correctly refers to "Figs. 3 and 4," not to Figs. 3, 4a and 4b.

Applicants believe that the correct Figures 3 and 4 attached to the enclosed Form PTO/SB/44 were properly filed and are clearly part of the records of the Office. Since all changes listed in the attached Form PTO/SB/44 were clearly disclosed by the records filed with the Office, Applicants respectfully request that the attached Certificate of Correction be approved.

Since the errors described above were made by the Office, no fee is believed to be required. However, in the event that fees are deemed to be required, we authorize the charging




Patent No. 6,829,478 B1  
Request for Certificate of Correction

of any such fees and crediting any overpayment to our Deposit Account No. 03-2410 (Order No. 26016.0.1).

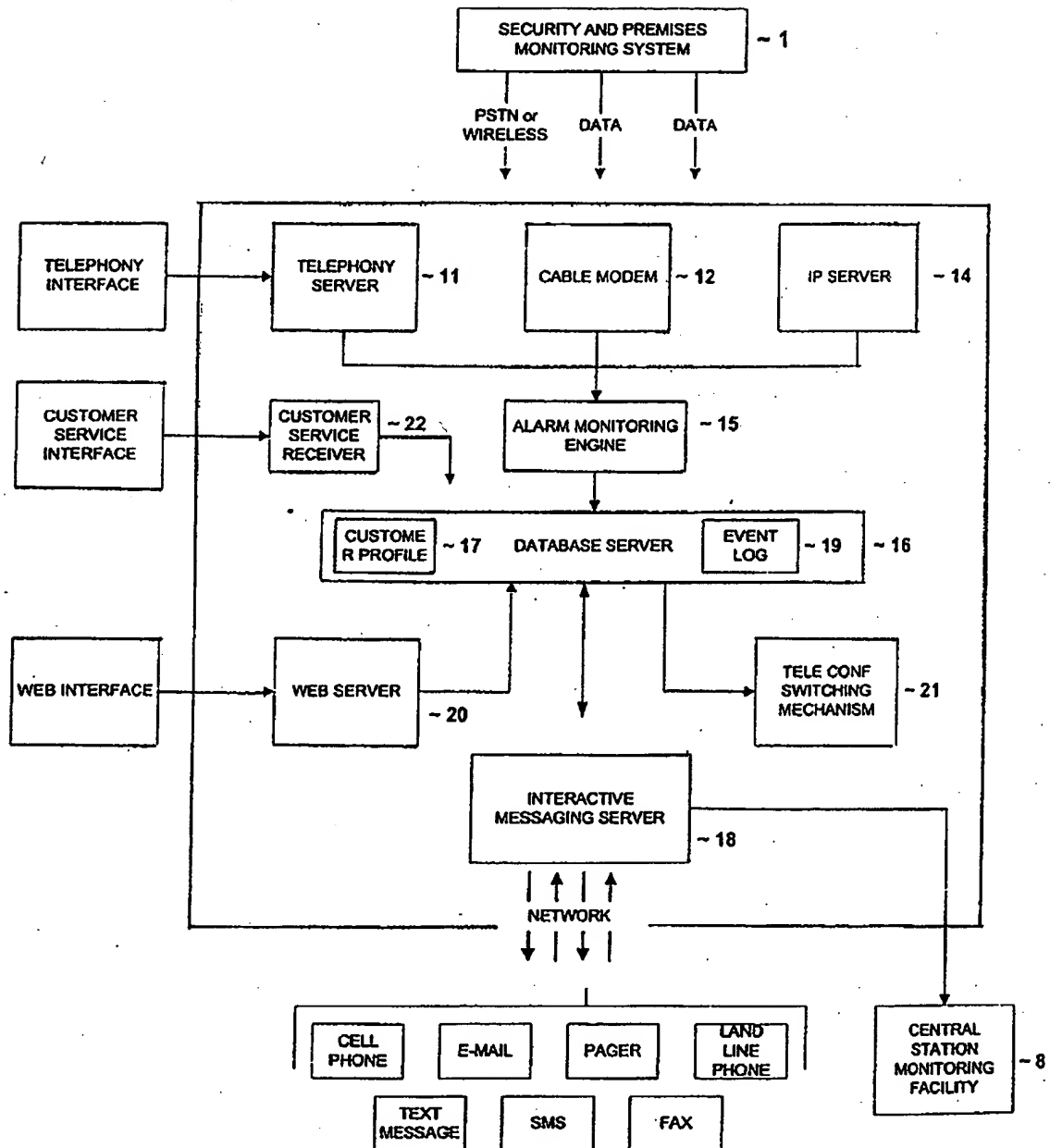
Dated: August 11, 2008

Respectfully submitted,  
Pamela G. Layton et al., Applicants

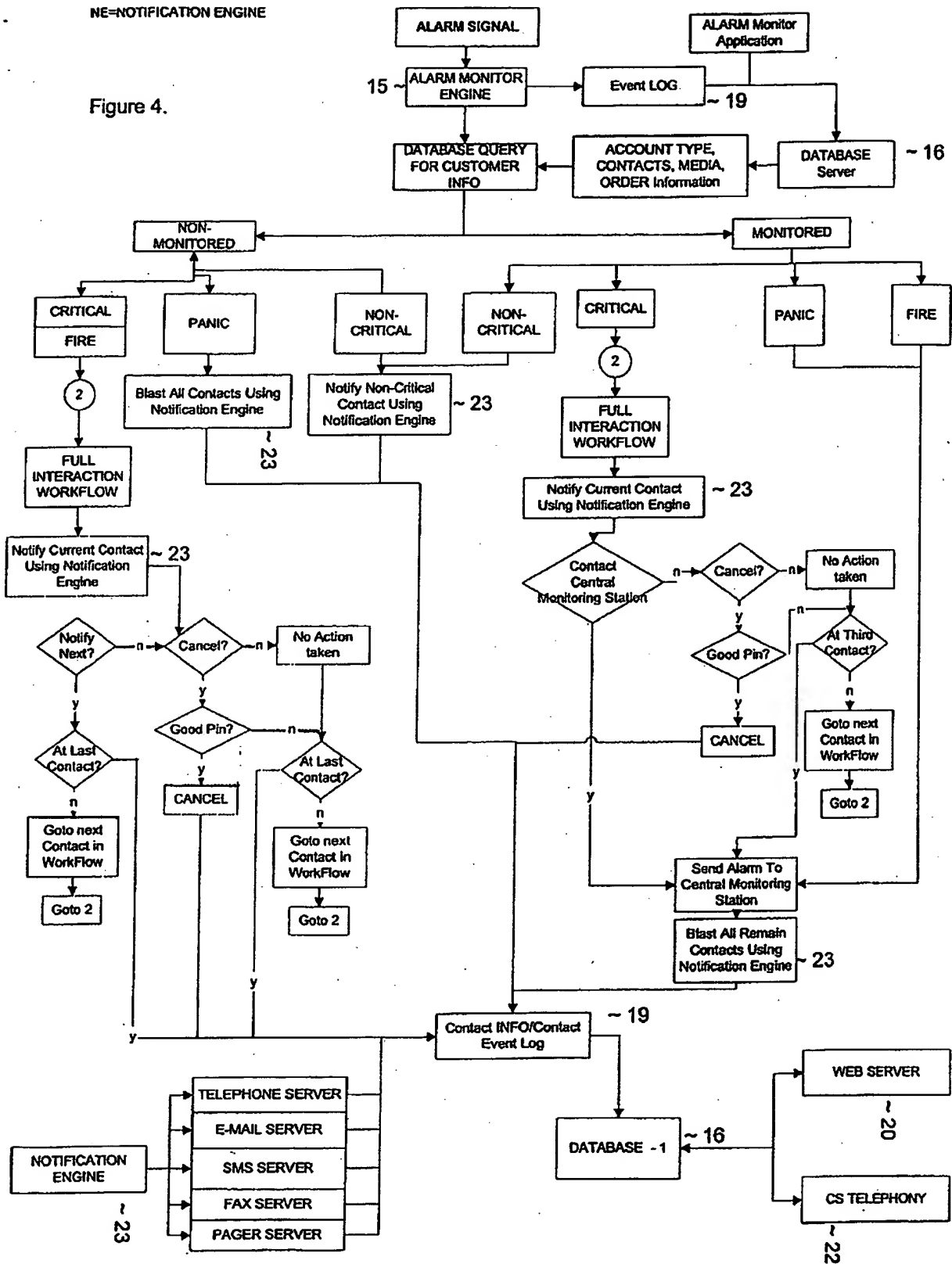
By:   
Jacob N. Erlich  
Reg. No. 24,338  
Attorney for Applicants

## Attachment A

FIGURE 3



**Figure 4.**



## Attachment B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Layton, P., et al.	
Application No.: 09/714,841	
Filed: 11/20/2000	Group Art Unit: 2683
Title: Combination Wireless Alarm System and Telephone Connected to an Information Network for Automated Delivery of Alarm Notifications and Other Information	Examiner: Tran. CongVan
Attorney Docket No.: 26016.0.1	

Commissioner for Patents  
Mail Stop Non-Fee Amendment  
P.O. Box 1450  
Alexandria, VA 22313

PRELIMINARY AMENDMENT PURSUANT TO 37 C.F.R. § 1.115

Dear Sir:

Please amend this application as follows:

In the List of Inventors:

Please delete Sidney Skjei as an inventor.

In the Specification:

A substitute specification follows this page. A line-in line-out version is  
appended to this amendment.

INFORMATION MANAGEMENT NETWORK FOR AUTOMATED DELIVERY OF  
ALARM NOTIFICATIONS AND OTHER INFORMATION

PRIORITY

This application claims priority from United States Provisional Applications 60/166,585, filed November 19, 1999, and 60/232,340, filed September 14, 2000, and incorporates both by reference herein as though fully set forth herein.

FIELD OF THE INVENTION

This invention relates generally to security and monitoring systems for both residential as well as business and industrial use. It relates more particularly to security and monitoring systems that operate over wired or wireless networks. Even more particularly, it relates to security and information systems that use condition sensors connected by a network that facilitates remote monitoring, notification, and interaction.

BACKGROUND OF THE INVENTION

Existing premises security monitoring systems are usually connected to central monitoring stations via the public switched telephone network (PSTN) or by a commercial wireless network. In the event of a system alert, current monitoring center procedures provide the customer with an alarm verification call, notification to the local police or fire authorities, and notification to a number of designated contact numbers. Although only 20% of the households in this country have monitored security systems, false-alarm police dispatches account for 98% of police dispatches nationwide. Such false alarm events typically cost municipalities nationwide over \$1.5 billion per year. As a result of the high incidence of false

alarms plaguing the industry, it is not uncommon for the police to take as long as an hour to reach the premises where an alarm has been activated.

Further, when an alarm system is violated, the siren only sounds for a period of up to five minutes. Should the homeowner return to the premises before the police arrive and after the alarm ceases, the safety of that individual is seriously compromised.

In the residential security system industry today, upon the receipt of an alarm transmission from a security or premises monitoring system, the dispatcher of the central station monitoring facility calls the premises to verify whether the emergency event is valid. If there is no answer or if it is otherwise deemed necessary, the dispatcher notifies the appropriate authority for emergency dispatch. At the time of emergency notification, the dispatcher at the central station monitoring facility is limited to the information transmitted from the base unit in the premises. The dispatcher does not have access to real-time information about the situation that could influence his decision as to whether to notify the emergency authority.

Furthermore, the calls made to the customer contacts after the authorities are dispatched are most typically not given priority by the central station monitoring facilities and are only made to the customer contacts when emergency calls and dispatches for other customers are not being made. Therefore, it is not uncommon for the contacts listed in the customer file to be notified about the alarm so long after the incident that notification is useless.

When the central station monitoring facility calls the premises to verify the alarm event, if the event notification is not cancelled, the dispatcher immediately notifies the emergency authorities for dispatch to the premises in question. If the homeowner is not at home at the time of the alarm event, the homeowner's knowledge of the premises, hardware and authorized users is not available to influence or control the action taken by the central station



monitoring facility at the time of alarm signal transmission. And, it is only after the emergency authorities have been dispatched that the dispatcher of the central station monitoring facility attempts to notify the other contacts listed in the customer's file.

Current systems also allow customers limited or no opportunities to alter contact numbers in their profiles or to be contacted via the growing variety of communication devices available to the public (e.g., fax, e-mail, pager, Personal Digital Assistant (PDA), text messaging device). It is therefore generally uncommon for the contact numbers stored in the customer's contact list to be up-to-date due to the cumbersome process required to update a contact list.

These factors seriously compromise the safety of the owner of the premises, who, if not on premises at the time of the alarm event, may not receive information about the alarm notification prior to entering the premises while an intruder is still present. The above factors also contribute to the high incidence of false alarm dispatches in this country. If the owner of the premises is not on the premises at the time of the alarm event, the owner is not able to direct the central station monitoring facility whether to cancel or continue with authority dispatch.

The current call flow process from a security or premises monitoring system direct to a Central Monitoring Station, which calls the premises for verification and then notifies the authority for emergency dispatch, is an inefficient premises monitoring solution. This call flow configuration also has adverse cost and safety implications for the system owner, central station monitoring facilities, authorities, and cities alike.

It is therefore an object of the invention to provide an improved system for monitoring premises security and other conditions. It is a primary object of this invention to provide a system that transmits interactive notifications about premises event and alert information in the order and manner determined by the customer within the customer profile to

any wired or wireless communication device. It is yet a further object of this invention to receive transmissions of alarm notifications regarding changes in the status of any one of a number of sensors or parameters in a security or premises monitoring system at a remote Information Management Network via the Public Switched Telephone Network, Wireless Commercial Network, cable network or other commercial network.

It is another object of the present invention that the customer be able to remotely and securely access the Information Management Network via the Internet or telephone to modify and review the information in his Customer Profile and Event Log within the Information Management Network, using a secure web or telephone interface, to easily and securely maintain and update contact lists and notification preference points, schedule times for certain information notifications, update call flow sequences, access personal account information, review detailed alarm history, review results of notifications made to each of the delineated devices, review billing information, schedule non-alarm event notifications and update and review other alarm signal and hardware related information. It is another object of the invention that the Information Management Network initiate periodic interactive notifications to customers to encourage them to update their Customer Profile by entering the correct digital or voice recognized pass code.

It is yet a further object of the invention that the customer be able to determine the order in which contacts will receive the event transmission and have the opportunity to cancel said event transmission prior to said transmission being sent to the central station monitoring facility or private guard service for authority dispatch. It is another object of the present invention that an authorized recipient of an event notification can cancel the transmission of the notification to the subsequent contacts in the notification sequence or a central station by entering the correct digital or voice recognized pass code. It is yet another object of this invention that a

central station monitoring facility use the Information Management Network to contact customer devices listed in the Customer Profile concurrently or following the dispatcher's verification call to the home, to allow an authorized individual, remote from the premises, to cancel the alarm notification prior to dispatch of the authorities. It is still another object of the invention that the recipient of a notification call be able to be transferred or conferenced with the emergency authority through a digital or voice request. It is another object of the invention that the receipt of information by the recipient can be confirmed and a record kept in the event log database of the Information Management Network for retrieval and review at a later date by an authorized individual. It is another object of the invention that the Information Management Network complement or replace the functions of a central station monitoring facility.

#### SUMMARY OF THE INVENTION

The system of the current invention provides to users and central station monitoring facilities an efficient and affordable event notification solution in which the call flow configuration of the invention is designed to enhance the safety and convenience of the customer and reduce the incidence of police, fire, or other emergency dispatches generated by false alarms.

The invention comprises a secure interactive and remotely accessible Information Management Network (IMN) based routing system for alert, medical, and other emergency event information.

The system delivers sequential interactive event notifications based on signals received from sensors at the monitored premises and sends them in text, voice, DTMF or digital, text messaging, or other formats to a plurality of remote wired and wireless devices, including cell phone, pager, email, SMS, landline phone, text messaging device, personal digital assistant, and fax as appropriate. The IMN further delivers such notifications to a pre-designated central

station monitoring facility in security industry format.

The hardware of the IMN is a combination of a plurality of modems, an alarm monitoring engine, at least one server containing customer information databases, a unified messaging platform, event logs, web and telephony interfaces, an interactive messaging server, a Private Branch Exchange/Interactive Voice Response (PBX/IVR) interface, and a telephone conferencing switching mechanism. This configuration translates the data received from a premises hardware unit into a notification capable of being sent in voice or text format to any number of customer designated devices including telephone, fax, email addresses, pager, Personal Digital Assistant (PDA), or text messaging device. The systems are redundant.

The IMN routing system is domiciled at a secure independent hosting facility or at a secure central station monitoring facility. The system is able to receive event and alert information from any security or premises monitoring devices and sequentially transmit interactive notifications about the event and alert to wired and wireless communications devices specified in the Customer's Profile within the IMN. Transmissions can be made in voice, text, DTMF, digital, text messaging or other formats to such devices as cell phone, pager, email, fax, text message device and SMS, as well as in Contact ID, SIA, or other security industry formats to an independent central station monitoring facility for them in turn to dispatch the authorities.

The automated secure remote IMN has a novel interactive alarm notification call flow sequence that uses information stored in the Customer Profile within the database of the IMN to notify designated points of contact by making sequential interactive notifications to one or more persons or locations previously designated in the Customer Profile over one or more wired and wireless devices in text, voice, DTMS, text messaging or digital formats to notify them of an emergency event or a change in the status of any premises sensors. Delivery to any

of the above destinations occurs in the order and manner specified in the authorized user's Customer Profile within the IMN.

For an alarm notification, the information conveyed can include the customer name, address, location of the security or premises hardware, phone number of the security or premises hardware, date, time, type and name of sensor, zone, local emergency authority phone number, and other relevant personal or premises-related information. The IMN also allows for a two-way communication interface with the security or premises hardware.

The IMN, having automatically received an alert notification from the premises where the monitoring devices are located, automatically accesses a data base, finds the particular owner's profile, and then also automatically sends interactive alert messages to phones, faxes, email devices, pagers, hand-held computers and/or a manned monitoring center as previously specified by the owner. The use of the alarm system is electronically logged in the IMN so that it can be reviewed later.

The system uses the information populated within the Customer Profile to instantly alert the customer and his contacts of the alarm event, for example, to warn them of an intruder on the premises or to alert them to another type of emergency event at the premises and enable them to make a decision as to whether the emergency authorities should be notified by the customer directly or through a central station monitoring facility or guard service, or the event notification should be cancelled.

The user can securely access the IMN via the Internet or telephone to program or re-program the user's customer profile, to include notification preference points, ordering of notifications, routing paths for different types of notifications, times for notification and other related information. This access is to a single universal access point. Receipt of information by

the user can be confirmed and a record kept in the event log database of the IMN for retrieval at a later date by an authorized user.

The IMN also permits the user to modify the pre-existing premises alarm notification call flow sequence by allowing the user to direct and manage the alarm notification process. Event notifications from the IMN are interactive and made sequentially to the contacts designated in the Customer's Profile, allowing the recipient of the event notification to determine the next action to be taken by the IMN in the call flow sequence. Authorized recipients are able to terminate or redirect subsequent event notifications by entering the correct pass codes digitally or through voice recognition technology.

Customers can select the number and ordering of contacts to be notified and queried prior to alarm event transmissions being sent to the central station monitoring facility for emergency authority dispatch. Customers can select to have a central station monitoring facility as part of the call flow sequence, or have notifications sent only to the contacts listed in their profile for those contacts to notify emergency authority for dispatch. Authorized users can access their Customer Profile via a pass code encrypted telephone or Internet interface, to change alarm system configuration, update their points of contact, establish the order in which contacts will be notified based on the type of alarm event and review emergency information any time they desired. Using the pass code accessible Internet and telephone interfaces, users can access information about their accounts, including billing information, contact points, pass code information and alarm history. The invention also provides for externally specified and changeable control of alarm system operation and home automation devices via the IMN or from a remote telephone. Externally directed control of alarm system operation and home automation devices takes place via the IMN.

The ability to securely and easily update contact information at anytime and from anywhere allows the customer to be part of and closely manage the security notification call flow process and enhance his safety by directing alarm event notifications to contact him on specified devices early on in the event notification process. This feature, coupled with the user's ability to cancel an alarm notification prior to its being sent to the central station monitoring facility, influences the call flow sequence of alarm event information and reduces the incidence of false alarm dispatches. Authorized contact recipients are identified with user-determined pass codes, verified by a digital pin number or Voice Recognition pin number, prior to that person instructing the IMN as to the next step or steps of action to be taken in the call sequence. Another important feature is the logging of event notification information into the database of the IMN so that the customer can review it at a later date.

In this system users have direct, secure access to the monitoring network database via phone or the global computer network in order to review and change alarm system configuration, points of contact and emergency information any time they desire. Customers have access to securely manipulate their personal information within their Customer Profile over the telephone or through a web interface, 24 hours a day.

Customers can elect to have central station monitoring facility back-up capability to be employed after one or more contacts listed in the Customer's Profile have been contacted and queried, and have failed to receive or respond correctly to the interrogation from the IMN. Customers can also elect not to have a central station monitoring facility as part of the call flow sequence and have the notifications sent only to the contacts listed in their Customer Profile. In all notification calls, customers are provided the opportunity to be transferred directly to the emergency authority for them to initiate a dispatch to the premises.

In certain instances, customers can select to have a central station monitoring facility or guard service notified for police or emergency dispatch, after one or more of the contacts listed in the Customer Profile have received the information and have either failed to properly cancel the event notification or have proactively instructed the IMN to contact the central station monitoring facility or guard service for dispatch. At the same time, recipients of alarm and event notifications are provided the local police number, as well as the ability to be transferred or conferenced with the local police or emergency authority.

Through the IMN, customers can also subscribe to receive notifications with content not related to the security or premises hardware. Such notifications include medication reminders, homeland security notifications and news events, transmitted at specific times, on specific dates, or under specific circumstances, and transmitted to a plurality of wired and wireless devices in text and voice formats as designated in the customer profile.



### BRIEF DESCRIPTION OF THE DRAWINGS

1. Figure 1 is a diagram of the communication flow established by the Information Management Network.
2. Figure 2 is a diagram of the communication established by the Information Management Network including the central station monitoring facility or private guard service, the police, or other emergency authority.
3. Figure 3 is a schematic diagram depicting the hardware components of the Information Management Network and the communications portals into and out of the Information Management Network.
4. Figure 4 is a flow diagram illustrating the work flow process within the Information Management Network.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A Security or Premises Monitoring System has been previously described in the parent application, which has been incorporated by reference. The Security or Premises Monitoring System is connected by a communications circuit, which can be any of or a combination of elements selected from the public switched telephone network, a wireless network, digital subscriber line via modem, cable modem connected to a cable network, the internet, and any other communications network capable of transmitting dual tone multiple frequency tones or their equivalent. The Security or Premises Monitoring System connects on demand to the Information Monitoring Network (IMN) of this invention, described below.

With respect to hardware, the IMN comprises at least a DTMF modem, an application interface, at least one server containing customer information databases, a unified messaging platform, an event log, a web interface, and a telephony interchange, such as a Private Branch Exchange/Interactive Voice Response (PBX/IVR) interface. (See FIG. 3). The at least one server comprises a server type computer the nature and configuration of which is well known to those skilled in the art. Those skilled in the art will also recognize that the network of this invention can be implemented with a variety of computing and communications hardware differing from those explicitly disclosed in this application but well known to those skilled in the art.

The hardware and software configuration translates the DTMF tones received from the Security or Premises Monitoring System into a message capable of being sent in voice or text format. As the following will describe, the IMN enables sending the message to any number of customer designated devices including telephone, fax, email addresses, pager, or Personal Digital Assistant (PDA) such as a PALM PILOT.

Referring to Figure 1, alarm or event information is sent from the Security or Premises Monitoring System 1 to the remote Information Management Network 2 via any type of communication channel. The system retrieves user information and alert notification addresses (including but not limited to phone numbers, fax numbers email addresses, pager numbers, and Personal Digital Assistant device addresses) from the customer database and, as described in more detail below, forwards the alarm notification or medical information to the designated points of contact, simultaneously or sequentially. For an alarm notification, the information conveyed includes the customer name, location of the base unit, phone number of base unit, date, time, type of sensor and zone.

Interactive notifications are then sent from the Information Management Network to the contacts listed in the Customer Profile 17 (shown in Fig. 3) via at least one communication device, including cell phone, pager, email, SMS, landline phone, fax or text messaging device. Contact recipients of the interactive alert notifications are provided the option to cancel the event notification by providing a correct pass code using digital entry or voice recognition technology; send the alert notification to the next contact in the Customer Profile 17, or be transferred to or conferenced with the local emergency authority. There is no central station monitoring facility associated with the call flow sequence of Figure 1.

Referring to Figure 2, alarm or event information is sent from the Security or Premises Monitoring System 1 to the remote Information Management Network 2 via any communication channel including the Public Switched Telephone Network, the Internet, Cable or a Wireless Network. Interactive notifications are then sent to the contacts by the Information Management Network listed in the Customer Profile 17 (shown in Fig. 3) via any number of communication devices including cell phone, pager, email, SMS, landline phone, fax or text

messaging device. Contact recipients of the interactive alert notification are provided the option to: cancel the event notification by providing the correct pass code using digital or voice recognition technology; send the alert notification to the next contact in the Customer Profile 17; send the alert notification to the central station monitoring facility. In this configuration, the central monitoring station is generally responsible for police and emergency authority notification for dispatch, but optionally the responder can be transferred to or conferenced with the local emergency authority.

Referring to Figure 3, information sent from the Security or Premises Monitoring System 1 to the Information Management Network 2 enters the Information Management Network 2 through the Telephony Server 11, Cable Modem 12 or IP Server 14. Alarm information then flows through the Alarm Monitoring Engine 15 to the Database Server 16. Information regarding the specific account is stored in the Customer Profile 17 within the Database Server 16 that provides the work flow process for each alarm event. All alarm notification events are sent by the Interactive Messaging Server 18 to the customer contacts via landline phone, cell phone, text messaging device, pager, email, fax or SMS. The Interactive Messaging Server 18 can interrogate the contact recipient of the alarm notification for information and institute the appropriate work flow process based on the response of that contact. The results of all work flow processes are stored the Event Log 19 and can be reviewed by authorized individuals through the Telephony Interface into the Telephony Server 11 or the Web Interface through the Web Server 20. During a notification, customers are provided the option to be connected to the police phone number listed in their Customer Profile 17 within the Database Server 16. This connection is made through the Telephone Conference Switching Mechanism 21. Alarm notifications associated with central station monitored accounts are

transmitted from the Database Server 16 to the central station monitoring facility via the Interactive Messaging Server 18 following the call flow sequence designated in the Customer Profile 17. Access to the Customer Profile 17 and changes to said Customer Profile 17 are made through the Telephony Server 11, Customer Service Receiver 22 and Web Server 20 into the Information Management Network 2.

Referring to Figure 4, the call flow processes are detailed for an alarm event. When the incoming signal is received by the Information Management Network 2, the signal enters the Alarm Monitoring Engine 15 and is immediately logged into the Event Log 19 within the Database Server 16. The alarm notification string is parsed to determine information about the account. Using the customer identification number, the Customer Profile 17 within the Database Server 16 is queried for the alarm type and customer account information for the work flow processes.

For a central station monitored account, there are different workflows associated with non-critical, critical, panic, and fire events. In the event of a non-critical alarm, which represents a low battery event, AC Power loss or other non-critical event, the alarm event information is sent by the Notification Engine 23 within the Interactive Messaging Server 18 to the customer's non-critical contact on the device specified in the Customer's Profile 17. The results of this notification are stored in the Event Log 19 within the Database Server 16. In the event of a critical alarm, the information is sent to the customer's first contact using the Notification Engine 23 within the Interactive Messaging Server 18. The contact is given the option to cancel the alarm or send the signal to the central station monitoring facility 8 for dispatch.

If the contact request's that the central station monitoring facility 8 be notified for

the dispatch of the authorities, the Notification Engine within the Interactive Messaging Server 18 sends the alarm transmission to the central monitoring station 8 for authority dispatch and the results of the work flow process are stored in the Event Log 19. All other contacts listed in the Customer's Profile 17 are then notified that alarm event notification was sent to the central station monitoring facility 8.

If the alarm notification information is sent to a device where the contact chooses to cancel the alarm event, the customer's notification cancel code is requested. If the correct alarm notification cancel code is entered, the alarm notification event and work flow process are cancelled and the information of the work flow process is stored in the Event Log 19.

If the incorrect alarm notification cancel code is entered, the customer is requested to re-enter the code. If an invalid alarm notification cancel code is entered second time, or no code is entered, the work flow process moves to the next contact listed in the Customer's Profile 17 and the notification process is repeated. When the second contact is notified, if there is no answer, an invalid cancellation code is entered or the contact selects to have the central station monitoring facility 8 notified, the alarm event is sent to the central station monitoring facility 8 for authority dispatch and the information is stored in the Event Log 19. In any case where a valid alarm notification cancel code is entered, the notification event and the workflow process are cancelled, and the information regarding the cancellation of the alarm event notification is stored in the Event Log 19. In any case where the central station monitoring facility 8 is notified for dispatch, all remaining contacts are notified that the alarm event was sent to the central station monitoring facility 8 and the information is then stored in the Event Log 19.

When an alarm notification is sent, if the notification is unable to be delivered by the Information Management Network 2, if the line is busy or there is no answer by the first contact listed in the

Customer Profile 17, the workflow process moves to the next contact listed in the Customer Profile 17.

If the first contact is answered by a voice mail or answering machine, the Notification Engine 23 within the Interactive Messaging Server 18 recognizes that it is not a live person, leaves a message and the work flow process moves to the next contact listed in the Customer's Profile 17. If the next contact is not answered, is answered by a voice mail or answering machine, or is answered and the correct alarm notification cancel code is not entered, the Notification Engine 23 within the Interactive Messaging Server 18 leaves a message where applicable and the alarm event notification is sent to the central station monitoring facility 8 and the remaining contacts listed in the Customer Profile 17 are notified that alarm event was sent to the central station monitoring facility 8. This information is then stored in the Event Log 19 within the Database Server 16.

In the event of a fire or panic alarm event, the information is sent directly to the central station monitoring facility 8 and all of the customer contacts listed in the Customer Profile 17 are notified of the alarm event. The information is stored in the Event Log 19. There are no cancellation privileges associated with these events.

For an account that does not have central station monitoring, there are different workflows associated with non-critical, critical, panic, and fire events. In the event of a non-critical alarm, which represents a low battery event, AC Power loss, or other non-critical event, the information is sent to the customer's non-critical contact on the specified device, using the Notification Engine 23 within the Interactive Messaging Server 18. The results of this notification are stored in the Event Log 19 within the Database 16.

In the event of a critical alarm, the information is sent to the customer's first

contact using the Notification Engine within the Interactive Messaging Server 18. The contact is given the option to cancel the alarm event or send the signal to the next contact listed in the Customer's Profile 17.

If the contact chooses to cancel the alarm event, the customer's notification cancel code is requested. If the correct alarm notification cancel code is entered, the alarm notification event and work flow process are cancelled and the results of the work flow process are stored in the Event Log 19. If the incorrect alarm notification cancel code is entered, the customer is requested to re-enter the alarm notification cancel code. If an invalid alarm notification cancel code is entered a second time, or no alarm cancellation code is entered, the work flow process moves to the next contact listed in the Customer's Profile 17 and the process is repeated. This work flow process will continue through all of the customer contacts until the alarm event is cancelled using the correct alarm notification cancel code. With each notification, the contact is given the information about the alarm event, including the name, address and system zone activated, as well as the police phone number to contact in the event of an emergency. During the process, the contact is given the option to have the notification sent to the next contact listed in the Customer Profile 17; given the option to cancel the notification; or be connected directly to the police phone number listed in his Customer Profile 17. In any case when a valid alarm notification cancel code is entered, the notification event and the workflow process are cancelled and the information is stored in the Event Log 19 within the Database Server 16.

When an alarm notification is sent, if the line is busy or there is no answer by the first contact listed in the Customer Profile 17, the workflow process moves to the next contact listed in the Customer's Profile 17 to continue the work flow process.

In the same event, if the notification is answered by a voice mail or answering



machine, the Notification Engine 18 recognizes that it is not a live person, leaves a message and the work flow process moves to the next contact listed in the Customer's Profile 17. If the next contact is busy, not answered, answered by a voice mail or answering machine, or answered and the correct alarm notification cancel code is not entered, the Notification Engine 18, leaves a message where applicable and moves to the next contact listed in the Customer's Profile 17. This process continues through all of the contacts listed in the Customer's Profile 17 until the correct alarm notification cancel code is entered to cancel the work flow process.

After the work flow process has attempted contact with all devices listed in the Customer's Profile 17, the Notification Engine 23 within the Interactive Messaging server 18 will try to send the alarm notification to those devices that were busy or where there was no answer to attempt to deliver the alarm event notification information.

In the event of a fire or panic alarm event, all of the customer contacts listed in the Customer Profile 17 are notified of the event and the results of the notification are stored in the Event Log 19 within the Database Server 16. There are no cancellation privileges associated with these events.

Confirmation that the alarm notification has been successfully transmitted to the customer's designated device(s) is housed in the event log and also in the Security or Premises Monitoring System. In a preferred embodiment, the IMN allows for a two-way communication interface with the base unit. In this way, the present invention allows for remote activation or resetting of the alarm and other devices in the home for security and home automation purposes, through the initiation of a phone call or global computer network transmission to the IMN. The IMN also allows the customer to preprogram alarm and home automation functions to initiate specific processes at specified times of the day.

The Information Management Network 2 can be programmed to forward certain alarm event transmissions directly to the central station monitoring facility 8 while other event transmissions are sent to the central station monitoring facility 8 only after the first, second, third or fourth transmission to the contacts listed in the Customer Profile 17.

Referring to Figure 3 again, the account information in the Customer Profile 17 within the Information Management Network 2 can be populated by the customer or other authorized individual via a secure web interface on the Web Server 20 or via a secure telephone interface using the Telephony Server 11. To access their Customer Profile 17, customers are required to provide their personal user name and a unique personal pass code. Through these interfaces, authorized individuals can customize their personal account information to add, delete or modify their pre-designated contacts and designate the order of alarm event information transmissions to their contacts, modify their home address, phone number, police contact number, and billing information. Any change made to data within the Customer Profile 17 is automatically sent via PSTN or Internet interface to the central station monitoring facility 8 to update the customer's account information on a real time basis. This transfer of information applies only to those customers subscribing to central station monitoring services, which services serve as a complement to the alarm notification call flow process made by the Information Management Network 2.

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PRELIMINARY AMENDMENT

PAGE 22

In the claims:

Please cancel Claims 19 through 26 and substitute therefor the following new

claims:

## CLAIMS

Claims 1-18 (previously cancelled).

Claims 19-26 (cancelled).

Claims 27-34 (previously cancelled)

35. (New) An information management network system for routing information to one or more recipients, said network system comprising:

- a) means for receiving information from a monitoring system;
- b) one or more user profiles, each of the one or more user profiles comprising one or more specified notification contact data entries and a specified notification contact flow sequence;
- c) means for selecting a single user profile corresponding to the monitoring system and for retrieving the selected single user profile;
- d) means for extracting from the selected single user profile the one or more specified notification contact data entries and the specified notification contact flow sequence;
- e) means for identifying from each of the one or more notification contact data entries one or more communication receiving devices and for each such device a device-specific format, each of said communication receiving devices being configured both to receive messages in device-specific formats and to transmit a response message back to the information monitoring network;
- f) means for generating from the information received from the monitoring system and from

each of the one or more notification contact data entries one or more interactive event notifications, each in a device-specific format corresponding to each of the one or more configured communication receiving devices;

g) means for transmitting said one or more interactive event notifications in device-specific formats to each of the one or more configured communication receiving devices either sequentially or simultaneously according to the specified notification contact flow sequence;

h) means for receiving from each of the one or more communication receiving devices, either sequentially or simultaneously according to the specified notification contact flow sequence, additional information or instructions containing specified subsequent actions to be taken by the network;

i) means for altering the specified notification contact flow sequence according to the specified subsequent actions contained in the additional information or instructions received from each of the one or more configured communication receiving devices; and

j) means for carrying out subsequent actions to be taken by the network according to the altered specified notification contact flow sequence.

36. (New) The information management network system of Claim 35 wherein the monitoring system is a premises monitoring system.

37. (New) The information management network system of Claim 35 wherein the information received from a monitoring system comprises an alarm or event notification.

38. (New) The information management network system of Claim 36 wherein the premises monitoring system is located remotely from the network system at a remote premises.
39. (New) The information management network system of Claim 35 wherein the user is a customer of an entity maintaining the information management network system.
40. (New) The information management network system of Claim 35 additionally comprising a premises monitoring system.
41. (New) The information management network system of Claim 35 additionally comprising
- a) one or more event logs corresponding to the one or more user profiles; and
  - b) means for storing in the event log information comprising the information received from the monitoring system and information regarding the one or more interactive event notifications sent by the network.
42. (New) The information management network system of Claim 41 additionally comprising means for the user to access and retrieve information stored in the event log.
43. (New) The information management network system of Claim <sup>35</sup>/~~36~~ additionally comprising:
- a) means for enabling a user to remotely access the user's user profile and the corresponding event log; and
  - b) means for enabling the user, after having accessed the user's profile, to change the specified notification contact data entries and the specified notification contact flow sequence, thereby changing the order and manner in which event notifications are

transmitted to the one or more configured communication receiving devices.

44. (New) The information management network system of Claim 43 wherein the means for enabling a user to remotely access the user's user profile and the corresponding event log is either a telephone interface or an internet interface.
45. (New) The information management network system of Claim 35 in which the one or more configured communication receiving devices to which interactive event notifications are directed are selected from the group: cell phone, e-mail, pager, land line phone, text messaging device, short messaging system, facsimile machine, and all combinations thereof.
46. (New) The information management network system of Claim 35 in which at least one of the one or more configured communication receiving devices is located at a staffed central station, and in which the device-specific format is a security industry data format, whereby the staffed central station is enabled to notify emergency authorities of the information received from the monitoring system.
47. (New) The information management network system of Claim 46 in which the staffed central station is enabled to send notification of an event to the user's home and to route a notification to the user at another location either concurrently with the notification to the home or sequentially.
48. (New) The information management network system of Claim 35 additionally comprising a means for voice telephone conferencing.
49. (New) The information management network system of Claim 35 additionally comprising means for sending out messages to users reminding them to update their user profiles.

50. (New) The information management network system of Claim 49 wherein the means for sending out messages to users comprises via email providing a link whereby to the web site for users can update their user profiles.

— 51. (New) The information management network system of Claim 49 wherein the means for sending out messages to users comprises a telephone interface, whereby the user is enabled to use the telephone key pad to update the user's user profile.

52. (New) An information management network alarm and event routing system comprising:

- a) a first communications interface configured so that a circuit from a security or premises monitoring system is able to connect on demand to the information management network and transmit thereto at least one signal comprising a notification string from the security or premises monitoring system;
- b) at least one database server having at least a first memory segment and a second memory segment, the first memory segment comprising an event log database and the second memory segment comprising a customer profile database;
- c) an alarm monitoring engine configured to receive a notification string from the first communications interface, to translate the notification string into a translated notification string capable of being sent in text or voice format, to extract from either the notification string or the translated notification string a customer identification number, to enter said notification string or said translated notification string in the event log database, and to retrieve from the customer profile database using the extracted customer identification number at least account type, alarm type, notification contact data, and call flow



sequence;

- d) a second communications interface capable of receiving alarm transmission instructions, accessing at least one alarm receiving device, and further capable of simultaneously accessing all plural combinations of all of the at least one alarm receiving device and connecting to said device or plural combinations of devices;
- e) an interactive messaging server comprising at least an event notification engine configured to receive the translated notification string from the alarm monitoring engine, to receive the at least account type, alarm type, notification contact data, and call flow sequence from the alarm monitoring engine, to sequentially select an alarm receiving device or simultaneously select a plurality of alarm receiving devices according to the notification contact data and call flow sequence received from the alarm monitoring engine, to select a correct transmission format for each alarm receiving device, and to transmit the translated notification string to the second communications interface in the correct transmission format either sequentially or simultaneously according to the call flow sequence;
- f) at least one communications circuit connected to the second communications interface, said communications circuit capable of accessing and sending notification messages in the correct format to at least one alarm receiving device according to the call flow sequence and notification contact data;
- g) a telephony interface and a telephony server capable of receiving telephone inquiries and instructions from a customer and configured so that the customer can alter the customer's

customer profile in the customer profile database and can retrieve information from the event log;

h) a web interface and a web server, whereby the customer can alter at least one of the notification contact data and call flow sequence and can retrieve information from the event log; and

i) a telephone conference switching mechanism;

whereby alarm and event notifications are routed to predesignated contacts stored in the customer profile database.

53. (New) The information management network alarm routing system of Claim 52 in which the first communications interface is selected from the group: telephony server; cable modem; internet protocol server; telephony server plus cable modem; telephony server plus internet protocol server; cable modem plus internet protocol server; telephony server plus cable modem server plus internet protocol server.

54. (New) The information management network alarm routing system of Claim 52 in which the at least one alarm receiving device is selected from the group cell phone, e-mail, pager, land line phone, text messaging device, short messaging system, facsimile machine.

55. (New) A method of routing information to one or more recipients comprising the steps of:

a) receiving information from a monitoring system;

b) storing one or more user profiles, each of the one or more user profiles comprising one or more specified notification contact data entries and a specified notification contact flow

sequence;

- c) selecting a single user profile corresponding to the monitoring system
- d) retrieving the selected single user profile;
- e) extracting from the selected single user profile the one or more specified notification contact data entries and the specified notification contact flow sequence;
- f) identifying from each of the one or more notification contact data entries one or more communication receiving devices and for each such device a device-specific format, each of said communication receiving devices being configured both to receive messages in device-specific formats and to transmit a response message back to the information monitoring network;
- g) generating from the information received from the monitoring system and from each of the one or more notification contact data entries one or more interactive event notifications, each in a device-specific format corresponding to each of the one or more configured communication receiving devices;
- h) transmitting said one or more interactive event notifications in device-specific formats to each of the one or more configured communication receiving devices either sequentially or simultaneously according to the specified notification contact flow sequence;
- i) receiving from each of the one or more communication receiving devices, either sequentially or simultaneously according to the specified notification contact flow sequence, additional information or instructions containing specified subsequent actions

to be taken by the network;

- j) altering the specified notification contact flow sequence according to the specified subsequent actions contained in the additional information or instructions received from each of the one or more configured communication receiving devices; and

carrying out subsequent actions to be taken by the network according to the altered specified notification contact flow sequence.

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PRELIMINARY AMENDMENT  
PAGE 32

In the Abstract:

Please delete the existing Abstract and substitute the following:

#### ABSTRACT

A remote Information Management Network routing system located either at an independent hosting facility or at a central station monitoring facility that receives event and alert information from a security or premise monitoring system and sequentially transmits interactive notifications about the event and alert information to wired and wireless devices specified in a user profile within the Information Management Network.

In the Drawings:

Please delete the existing drawings and substitute therefor the attached substitutes.

Red lined copies of the existing drawings are provided as Appendix C.

Figure 1.

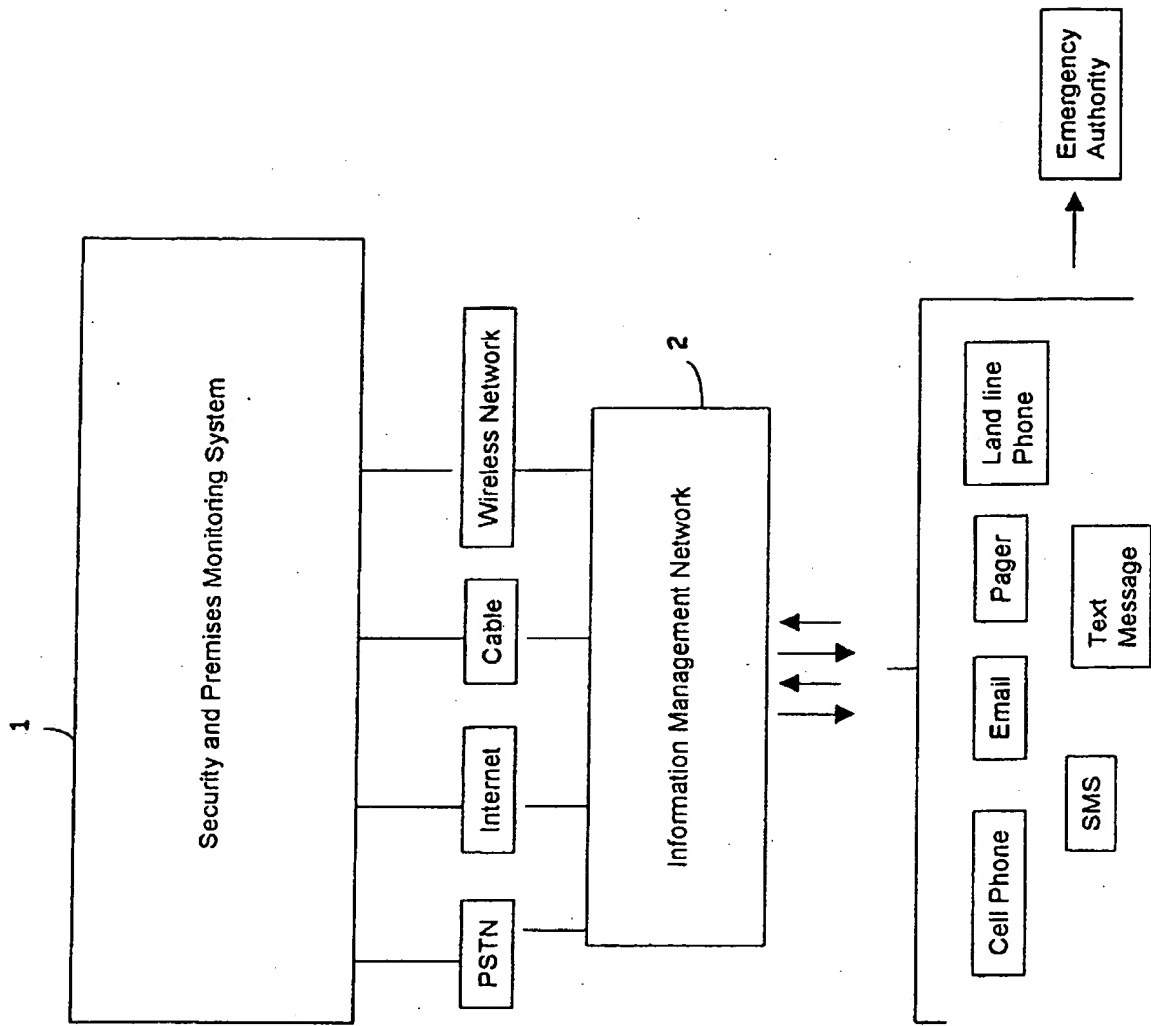




Figure 2.

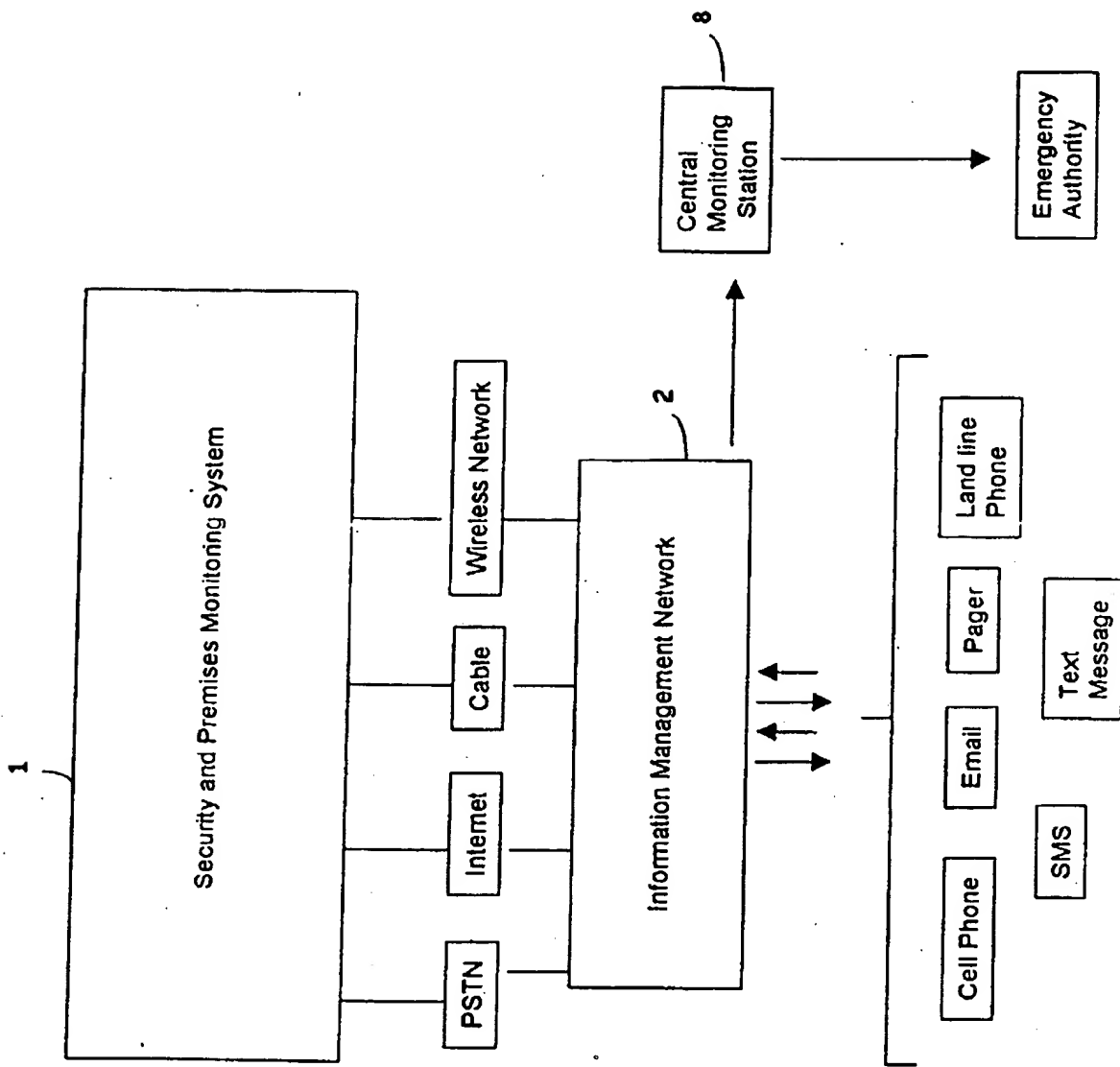


FIGURE 3

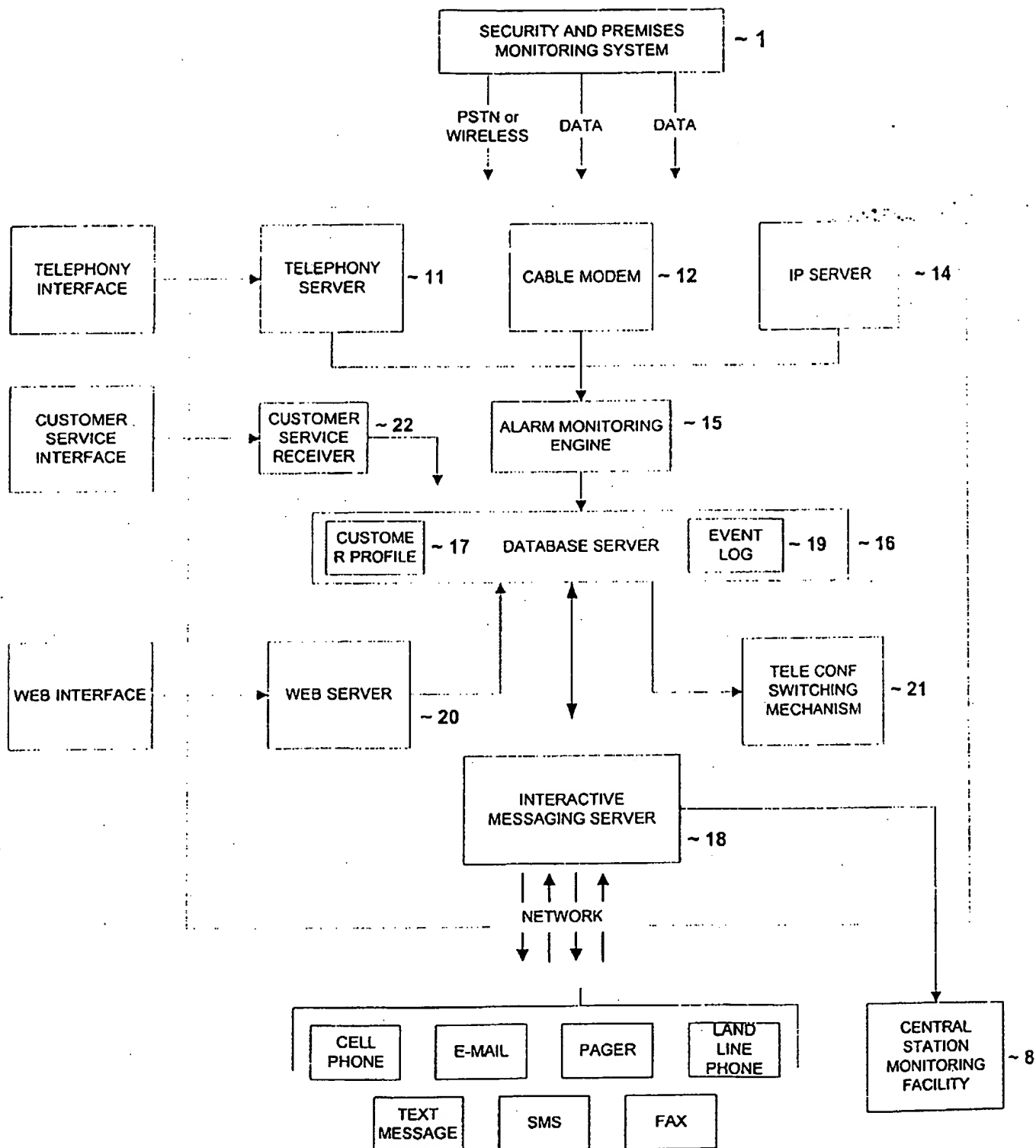
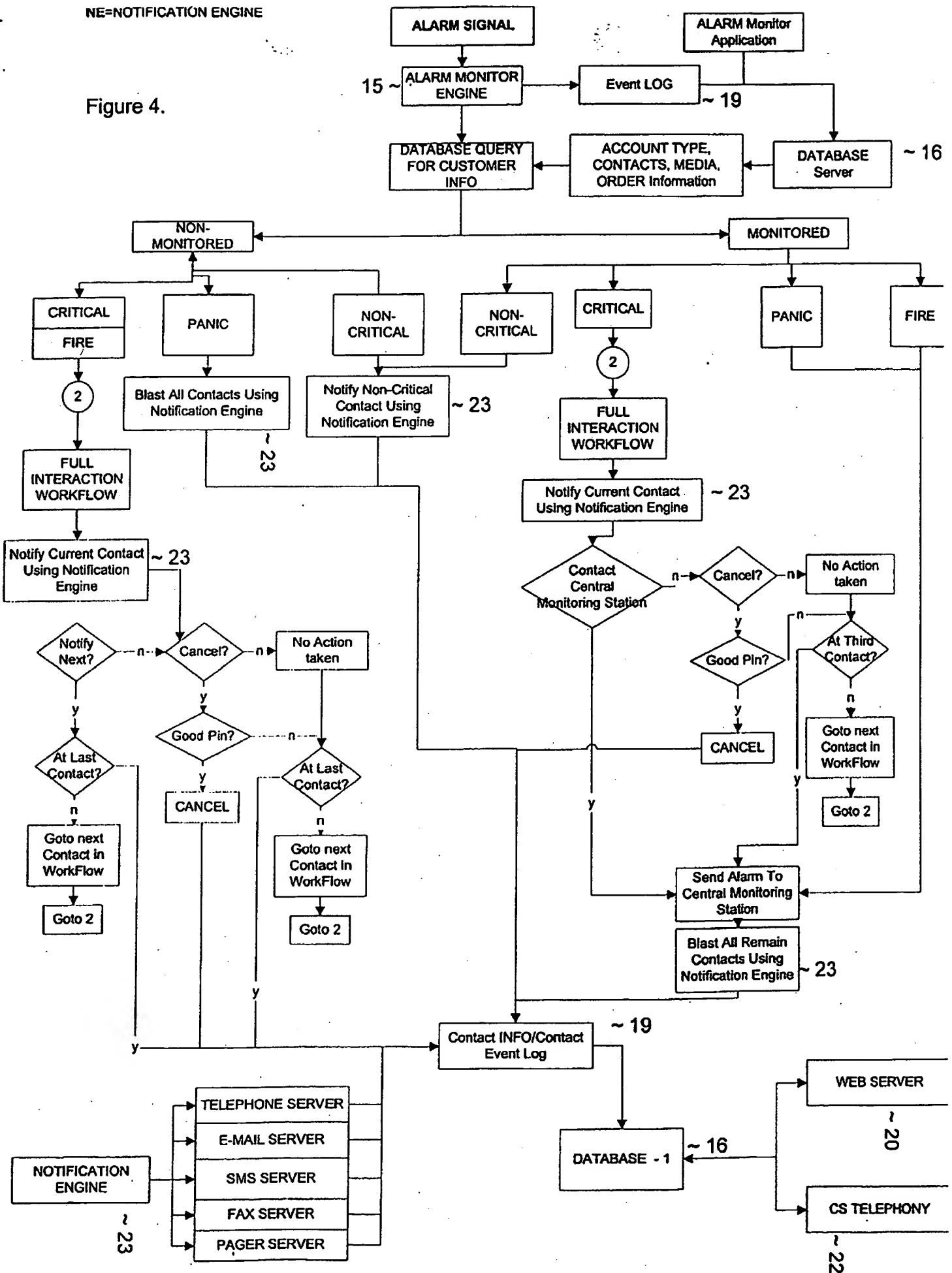


Figure 4.



REMARKS

Expeditious examination is respectfully solicited. Applicants have rewritten the specification in order to make the description of the invention more full, clear, concise, and exact in accordance with 35 U.S.C. § 112 paragraph 1. To the best of undersigned counsel's ability to discern, the specification contains no new matter.

In addition, Applicants have cancelled all preexisting claims to the elected invention and substituted new claims. It is believed that these new claims more particularly point out and more distinctly claim the subject matter of the elected invention in accordance with 35 U.S.C. § 112 paragraph 2.

Finally, Applicants are accompanying this Preliminary Amendment with a Request to Delete Inventor for Sidney Skjei. The reason therefor is that Mr. Skjei had no inventive roll with respect to the claims for the elected invention.

Applicants have made a diligent effort to place the claims in condition for allowance. Should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Frederick C. Williams, Applicants' Attorney at (202) 842-0445 so that such issues may be resolved as expeditiously as possible.

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PRELIMINARY AMENDMENT

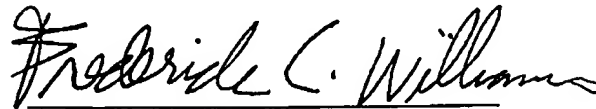
PAGE 36

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully submitted.

January 5, 2004

Date



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**APPENDIX A: LINE-IN LINE-OUT SPECIFICATION**

~~COMBINATION WIRELESS ALARM SYSTEM AND TELEPHONE CONNECTED TO AN~~  
**INFORMATION MANAGEMENT NETWORK FOR AUTOMATED DELIVERY OF  
ALARM NOTIFICATIONS AND OTHER INFORMATION**

PRIORITY

~~The disclosure of U.S. provisional application S.N. 60/166,585, filed 11/19/99, and~~  
~~U.S.S.N. 60/232,340, filed 11/14/2000, are hereby incorporated by reference.~~

This application claims priority from United States Provisional Applications 60/166,585, filed  
November 19, 1999, and 60/232,340, filed September 14, 2000, and incorporates both by  
reference herein as though set forth in full.

**FIELD OF THE INVENTION**

~~The present invention relates generally to a combination system of a corded or cordless~~  
~~telephone; a monitoring alarm system for homes, apartments and business premises; a compact~~  
~~transportable wireless personal communication for one touch communication; a corded/cable~~  
~~dialing unit connecting to the public switched telephone network (PSTN); or in some versions a~~  
~~wireless commercial network; and any of a plurality of peripheral wireless devices, such as~~  
~~security sensors, environmental sensors, medical monitoring sensors and home automation~~  
~~control modules, all interfaced with an interactive information management network (IMN) and~~  
~~routing system for alert, medical and other information to one or more remote points of contact.~~  
~~Capabilities of the system include externally directed control of alarm system operation and~~  
~~home automation devices via the information management network or remote telephone.~~

This invention relates generally to security and monitoring systems for both residential as well as business and industrial use. It relates more particularly to security and monitoring systems that operate over wired or wireless networks. Even more particularly, it relates to security and information systems that use condition sensors connected by a network that facilitates remote monitoring, notification, and interaction.

## BACKGROUND OF THE INVENTION

~~Due to their complexity and the hardwired nature of sensors and/or the alarm control panel central to the operation of current systems, common home security monitoring systems require costly professional installation. The hardwired characteristics of the control panel prevent self installation and/or relocation of the system should the owner change residences. Monitoring services are available through a limited number of specialized manned monitoring centers. Due to high equipment and personnel costs in these centers, monitoring fees are generally priced out of the economic reach of most consumers. Consequently, only 15% of the households in the United States have monitored security systems. Even fewer households have means to remotely monitor, e.g. from work, the medical condition of an ailing relative.~~

Existing premises security monitoring systems are usually connected to central monitoring stations via the public switched telephone network (PSTN) or a by a commercial wireless network. In the event of a system alert, current monitoring center procedures provide



the customer with an alarm verification call, notification to the local police or fire authorities, and notification to a number of designated contact numbers. Although only 20% of the households in this country have monitored security systems, false-alarm police dispatches account for 98% of police dispatches nationwide. Such false alarm events typically cost municipalities nationwide over \$1.5 billion per year. As a result of the high incidence of false alarms plaguing the industry, it is not uncommon for the police to take as long as an hour to reach the premises where an alarm has been activated.

~~In the event of a system alarm, current monitoring center procedures provide the customer with an alarm verification call, notification to local police or fire authorities and notification to a number of designated contact numbers. Current systems allow customers limited opportunities to alter contact numbers, or to be contacted via the growing variety of communication devices available to the public today, for example, pager, and e-mail. Personal Digital Assistant (PDA).~~

~~It would be a desirable improvement if there could be an automated secure monitoring network, which could efficiently and inexpensively notify designated points of contact via the wide variety of communications media. It would be a further improvement if users had direct secure access to the monitoring network database via phone or the global computer network in order to review and change alarm system configuration, points of contact and emergency information any time they desired. It would be a further improvement if the use of the alarm system could be electronically logged in the base unit and in the Information Management Network so that it could be reviewed later.~~

Further, when an alarm system is violated, the siren only sounds for a period of up to five minutes. Should the homeowner return to the premises before the police arrive and after the alarm ceases, the safety of that individual is seriously compromised.

~~The prior art alarm systems generally comprise a control panel and several wired or wireless remote units. The control panel houses the control circuitry and interface circuits, such as telephone jacks and cellular or radio transceivers.~~

In the residential security system industry today, upon the receipt of an alarm transmission from a security or premises monitoring system, the dispatcher of the central station monitoring facility calls the premises to verify whether the emergency event is valid. If there is no answer or if it is otherwise deemed necessary, the dispatcher notifies the appropriate authority for emergency dispatch. At the time of emergency notification, the dispatcher at the central station monitoring facility is limited to the information transmitted from the base unit in the premises. The dispatcher does not have access to real-time information about the situation that could influence his decision as to whether to notify the emergency authority.

~~Prior art cordless telephones generally comprise a base unit and a cordless handset. The base unit is connected to the public switched telephone network via telephone jacks. The base unit and handset communicate by radio frequency, typically at 900 MHz (megahertz) or 2.4 GHz (gigahertz). Prior art corded telephones generally comprise a base unit and a corded handset.~~

Furthermore, the calls made to the customer contacts after the authorities are dispatched are most typically not given priority by the central station monitoring facilities and are only made to the customer contacts when emergency calls and dispatches for other customers are not being made. Therefore, it is not uncommon for the contacts listed in the customer file to be notified about the alarm so long after the incident that notification is useless.

~~It would be a desirable improvement if there could be a combined unit of (1) the corded or cordless telephone base unit and (2) the control panel of a monitoring alarm system. There is significant redundancy between the circuitry of a corded or cordless telephone base unit and an alarm system control panel. The present invention combines the circuitry of both devices resulting in an economic utility without compromising the integrity of either system. The combined capabilities of the telephone and alarm circuits provide a single device which can monitor a wide variety of security and environmental sensors, perform standard telephone functions when required, can automatically provide alert messages via wired or wireless network communication channels to a fully automated monitoring and Information Management Network.~~

When the central station monitoring facility calls the premises to verify the alarm event, if the event notification is not cancelled, the dispatcher immediately notifies the emergency authorities for dispatch to the premises in question. If the homeowner is not at home at the time of the alarm event, the homeowner's knowledge of the premises, hardware and authorized users is not available to influence or control the action taken by the central station

monitoring facility at the time of alarm signal transmission. And, it is only after the emergency authorities have been dispatched that the dispatcher of the central station monitoring facility attempts to notify the other contacts listed in the customer's file.

~~It would be a further improvement if this Information Management Network, having automatically received an alert call from the premises where the phone is located, would automatically access a database, find the particular owner's profile, and then also automatically send alert messages to phones, faxes, email devices, pagers, hand held computers and/or a manned monitoring center as previously specified by the owner. We are aware of no telephone-based security system that is combined with an Information Management Network that allows for the collection and routing of security, medical and other information to devices of an owner's choosing. The unique interface between the telephone and alarm circuitry also allows the flow of command signals back to the alarm circuitry for remote control of alarm system operation and home automation control and wireless reporting devices. It would be a further desirable improvement if this system could be connected to a separate Calling Unit using radio frequencies, so that any attempt to remove power or functionality from the system would result in an automatic alert call.~~

Current systems also allow customers limited or no opportunities to alter contact numbers in their profiles or to be contacted via the growing variety of communication devices available to the public (e.g., fax, e-mail, pager, Personal Digital Assistant (PDA), text messaging device). It is therefore generally uncommon for the contact numbers stored in the customer's

contact list to be up-to-date due to the cumbersome process required to update a contact list.

~~The combination of telephone and alarm circuitry supports two-way communication capabilities between a Personal Communicator Device (PCD) and the telephone. The PCD offers the user a small, portable, wireless personal assistance communication device capable of one button alerting of designated contact numbers and/or local police fire authorities in the event of an emergency. The device also offers two-way communication with the contact party via the telephone base unit while also notifying the information management network that an alert call has been placed. The information management network allows notification of an emergency condition to be forwarded to designated points of contact of the owner's choosing (e.g., friends, neighbors or relatives). We are aware of no currently available personal assistance device which enables a person to direct dial an emergency response number (e.g. 911 in North America) for help and also to automatically notify a friend or relative of the call.~~

These factors seriously compromise the safety of the owner of the premises, who, if not on premises at the time of the alarm event, may not receive information about the alarm notification prior to entering the premises while an intruder is still present. The above factors also contribute to the high incidence of false alarm dispatches in this country. If the owner of the premises is not on the premises at the time of the alarm event, the owner is not able to direct the central station monitoring facility whether to cancel or continue with authority dispatch.

~~It would be a desirable improvement if children, baby sitters, those who are medically~~

~~challenged, the elderly and others could have the capability of direct dialing to a designated contact point from a small device with two-way communication. Moreover, it would be a desirable improvement if the routing of these calls could be easily modified on the telephone base unit or through the Information Management Network. It would also be desirable for the user to designate the routing of his emergency or security calls either sequentially or simultaneously. It would be a desirable improvement if there were a telephone base unit connected to an Information Management Network that is capable of receiving transmissions of real-time medical information that is then automatically supplemented with patient information and routed automatically to one or more points of contact, such as hospitals, doctors' offices and/or relatives, simultaneously or sequentially.~~

The current call flow process from a security or premises monitoring system direct to a Central Monitoring Station, which calls the premises for verification and then notifies the authority for emergency dispatch, is an inefficient premises monitoring solution. This call flow configuration also has adverse cost and safety implications for the system owner, central station monitoring facilities, authorities, and cities alike.

~~— A signal transmitted by the personal communicator device (PCD) may include an emergency code. For example, in the event of an emergency, such as a heart attack, a customer may press a "panic button" found on the PCD. Pressing the panic button may cause the base unit to transmit an emergency call to the network where information (text or voice) is routed to the pre-designated contact points either by public switched telephone network (PSTN), wireless~~

~~communication network or the global computer network. If the customer has subscribed a  
manned monitoring station notification, the station operator will be able to speak directly to the  
customer via the PCD, which contains a speaker and microphone, in order to determine customer  
assistance requirements. In some embodiments, where separate panic buttons are available for  
identifying medical, police, fire or other types of emergencies, the nature of the emergency is  
automatically communicated to the designated responder. In other embodiments, the PCD  
notification to the Information Management Network initiates forwarding of additional  
information such as medical data, the customer's exact location in the home, or an access code  
allowing entrance into the residence as a supplement to the transmitted message.~~

It is therefore an object of the invention to provide an improved system for  
monitoring premises security and other conditions. It is a primary object of this invention to  
provide a system that transmits interactive notifications about premises event and alert  
information in the order and manner determined by the customer within the customer profile to  
any wired or wireless communication device. It is yet a further object of this invention to receive  
transmissions of alarm notifications regarding changes in the status of any one of a number of  
sensors or parameters in a security or premises monitoring system at a remote Information  
Management Network via the Public Switched Telephone Network, Wireless Commercial  
Network, cable network or other commercial network.

~~Managed healthcare protocols have resulted in increasingly earlier release from  
hospitalization, or in many cases, no hospitalization at all. In home health monitoring~~

~~equipment, such as, cardiac, blood oxygen level, fetal and blood pressure monitors, have become an integral part of acceptable medical care. The development of affordable home monitoring systems capable of communicating real-time medical status information to a physician, hospital or other concerned party is of significant benefit to the public. We are aware of no commercially available wireline or wireless device that monitors medical sensor status and when necessary, automatically notifies an Information Management Network, which then forwards specific real-time medical information to designated medical contact points, as well as notifying friends or family of an abnormal condition. Further, we are aware of no commercially available device that accomplishes the transfer of this information from medical devices linked to the system by a Radio Frequency (RF) interface in a highly portable form. It would also be desirable for the Information Management Network to be programmed to make periodic automated calls into the home to determine occupant activity and/or the status of the medical equipment in the home.~~

It is another object of the present invention that the customer be able to remotely and securely access the Information Management Network via the Internet or telephone to modify and review the information in his Customer Profile and Event Log within the Information Management Network, using a secure web or telephone interface, to easily and securely maintain and update contact lists and notification preference points, schedule times for certain information notifications, update call flow sequences, access personal account information, review detailed alarm history, review results of notifications made to each of the delineated devices, review billing information, schedule non-alarm event notifications and update and review other alarm signal and hardware related information. It is another object of the invention that the Information



Management Network initiate periodic interactive notifications to customers to encourage them to update their Customer Profile by entering the correct digital or voice recognized pass code.

~~Home automation devices are becoming an increasingly popular means to improving quality of life. To our knowledge, home automation systems do not offer a user the ability to control environmental or appliance devices from outside the premises using the public switched telephone network (PSTN), wireless or global computer network connection to a telephone base unit.~~

It is yet a further object of the invention that the customer be able to determine the order in which contacts will receive the event transmission and have the opportunity to cancel said event transmission prior to said transmission being sent to the central station monitoring facility or private guard service for authority dispatch. It is another object of the present invention that an authorized recipient of an event notification can cancel the transmission of the notification to the subsequent contacts in the notification sequence or a central station by entering the correct digital or voice recognized pass code. It is yet another object of this invention that a central station monitoring facility use the Information Management Network to contact customer devices listed in the Customer Profile concurrently or following the dispatcher's verification call to the home, to allow an authorized individual, remote from the premises, to cancel the alarm notification prior to dispatch of the authorities. It is still another object of the invention that the recipient of a notification call be able to be transferred or conferenced with the emergency authority through a digital or voice request. It is another object of the invention that the receipt of information by the recipient can be confirmed and a record kept in the event log database of the

Information Management Network for retrieval and review at a later date by an authorized individual. It is another object of the invention that the Information Management Network complement or replace the functions of a central station monitoring facility.

~~It would be a desirable improvement if there were a combination alarm/telephone Base Unit connected to an Information Management Network via PSTN or the wireless infrastructure that would enable one to control home automation devices and a home security system, easily and inexpensively, using the telephone or global computer network from a remote location.~~

## SUMMARY OF THE INVENTION

~~The invention comprises a telephone base unit (Base Unit) that combines the circuitry and components of a corded or cordless telephone and the components of an alarm system control panel, capable of alarm and home automation functionality. In another configuration, the invention also includes an independent cordless personal communication device. The telephone Base Unit includes data, radio, and/or telecommunications interfaces for establishing voice, data, radio and other telecommunications links with, among other devices, remote alarm sensors, a Calling Unit, Telephone Isolation Switches, home automation control modules, a wireless personal communicator device (PCD), a cordless handset, a public switched telephone network, and in some instances, connectivity with the wireless/cellular infrastructure, Integrated Services Digital Network (ISDN), Digital Subscriber Line (DSL) or coaxial or fiber optic cable for interface to the global computer network. In other embodiments, the Base Unit combines the~~

~~preceding components with a separate, redundant calling unit for added security. The telephone system allows the user to dial into the alarm unit and turn it on or off, change its configuration, and get system status reports. In other embodiments, the telephone base unit will communicate with wireless, independent medical devices for in-home medical monitoring. For example, one could check on an elderly relative.~~

~~The system of the current invention provides to users and central station monitoring facilities an efficient and affordable event notification solution in which the call flow configuration of the invention is designed to enhance the safety and convenience of the customer and reduce the incidence of police, fire, or other emergency dispatches generated by false alarms. The invention comprises a secure interactive and remotely accessible Information Management Network (IMN) based routing system for alert, medical, and other emergency event information. The system delivers sequential interactive event notifications based on signals received from sensors at the monitored premises and sends them in text, voice, DTMF or digital, text messaging, or other formats to a plurality of remote wired and wireless devices, including cell phone, pager, email, SMS, landline phone, text messaging device, personal digital assistant, and fax as appropriate. The IMN further delivers such notifications to a pre-designated central station monitoring facility in security industry format.~~

~~Using the public switched telephone network (PSTN), the wireless infrastructure, Integrated Services Digital Network (ISDN), Digital Subscriber Line (DSL), cable modem or other interface to the global computer network, the base unit or independent calling unit (CU)~~

~~communicates with an information management retrieval and transmission network, hereinafter referred to as the Information Management Network (IMN), using a series of Dual Tone Multiple Frequency (DTMF) tones that interface with the IMN to initiate a series of information delivery transactions. The IMN simplifies routing of alarm notifications by providing a single universal access point, giving users quick access to predetermined connections. The IMN is the combination of a DTMF modem, an application interface (API), a series of servers containing customer information databases, a unified messaging platform, an event log, a web interface, and a Private Branch Exchange/Interactive Voice Response (PBX/IVR) interface (See FIG. 8). This configuration translates the DTMF tones received from the base unit into a message capable of being sent in voice or text format to any number of customer designated devices including telephone, fax, email addresses, pager, or Personal Digital Assistant (PDA) such as a PALM PILOT. The IMN can be securely accessed via the global computer network or standard telephone transmission lines to program a user's customer profile, to include notification preference points, times for notification and other related information. Receipt of information by the user can be confirmed and a record kept in the event log database of the IMN and in the Base Unit.~~

The hardware of the IMN is a combination of a plurality of modems, an alarm monitoring engine, at least one server containing customer information databases, a unified messaging platform, event logs, web and telephony interfaces, an interactive messaging server, a Private Branch Exchange/Interactive Voice Response (PBX/IVR) interface, and a telephone conferencing switching mechanism. This configuration translates the data received from a

premises hardware unit into a notification capable of being sent in voice or text format to any number of customer designated devices including telephone, fax, email addresses, pager, Personal Digital Assistant (PDA), or text messaging device. The systems are redundant.

~~The base unit has the ability to make a call to a dial-in code of the IMN upon command from the Alarm Processor, or internally a microprocessor, microcontroller or application specific integrated circuit (ASIC). The alarm processor receives the input command, whether initiated from the alarm unit or detected on-site by a smoke, burglar alarm or security or environmental sensor, or automatically detected by a motion or medical monitoring device, and then determines what action to command, makes the telephone connection and awaits confirmation. If no confirmation is received back, the alarm processor keeps trying to connect and the message is sent.~~

The IMN routing system is domiciled at a secure independent hosting facility or at a secure central station monitoring facility. The system is able to receive event and alert information from any security or premises monitoring devices and sequentially transmit interactive notifications about the event and alert to wired and wireless communications devices specified in the Customer's Profile within the IMN. Transmissions can be made in voice, text, DTMF, digital, text messaging or other formats to such devices as cell phone, pager, email, fax, text message device and SMS, as well as in Contact ID, SLA, or other security industry formats to an independent central station monitoring facility for them in turn to dispatch the authorities.

~~The user identification number, phone number and sensor information (FIG. 12) are part of the message transmitted to the IMN. The IMN then retrieves user information and alert notification addresses (including but not limited to phone numbers, fax numbers, email addresses, pager numbers, and Personal Digital Assistant device addresses) from the customer database and forwards the alarm notification or medical information to the designated points of contact, simultaneously or sequentially. For an alarm notification, the information conveyed includes the customer name, location of the base unit, phone number of base unit, date, time, type of sensor and sensor. The user information residing in the IMN database can be modified at any time over the telephone or global computer network. Confirmation that the alarm notification has been successfully transmitted to the customer's designated device(s) is housed in an event log in the IMN and in the base unit as well. In a preferred embodiment, the IMN allows for a two-way communication interface with the base unit. In this way, the present invention allows for remote activation or resetting of the alarm and other devices in the home for security and home automation purposes, through the initiation of a phone call or global computer network transmission to the IMN. In addition, the present invention includes the maintenance of an event log in the base unit, and another in the IMN, permitting retrieval of call data. The use of the IMN allows the user to preprogram alarm and home automation functions to initiate specific processes at specified times of the day. Similarly, the user can call the unit directly via telephone and initiate alarm and home automation transactions.~~

The automated secure remote IMN has a novel interactive alarm notification call flow sequence that uses information stored in the Customer Profile within the database of the

IMN to notify designated points of contact by making sequential interactive notifications to one or more persons or locations previously designated in the Customer Profile over one or more wired and wireless devices in text, voice, DTMS, text messaging or digital formats to notify them of an emergency event or a change in the status of any premises sensors. Delivery to any of the above destinations occurs in the order and manner specified in the authorized user's Customer Profile within the IMN.

~~The base unit includes a status display which indicates the operating and battery status of all premises sensors, fire alarm, security sensors and devices communicating to the telephone. The Liquid Crystal Display (LCD) will provide visual alarm status, while an audio alarm will alert the individual of a security or fire alarm indication. For embodiments of the system which do not include the LCD, an alarm event triggers the microprocessor to generate an audible alarm and visual notification in text format on the LCD of the Base Unit, while calling the IMN. If an alarm occurs while the telephone line is being used for a live, conventional conversation, or any other purpose, the system automatically terminates the call, freeing the line, and initiates the dial out process to send the alarm signal to the IMN. The Base Unit has control circuitry that is configured such that if, during a telephone call, the Base Unit receives an alarm signal, the Base Unit will either (1) if it is a one line phone, disconnect the line and contact the IMN, or (2) if it is a 2 line phone, call the IMN on the second line. Since a house may have a plurality of conventional phones connected to a single ringing line, and it is necessary to be able to pre-empt all these extension phones, a small module with a wireless control signal receiver is preferably interposed between each extension phone and its respective wall jack. In this configuration, the base system~~

~~wirelessly send an out-of-band signal to the module switch at each telephone jack, allowing the telephone line to be seized and cleared for alarm information transmission purposes. These modules are herein referred to as the Telephone Isolation (TI) switches.~~

For an alarm notification, the information conveyed can include the customer name, address, location of the security or premises hardware, phone number of the security or premises hardware, date, time, type and name of sensor, zone, local emergency authority phone number, and other relevant personal or premises-related information. The IMN also allows for a two-way communication interface with the security or premises hardware.

~~In a telephone-based security system, there is always the possibility that an intruder will disable the alerting system by cutting the telephone line to the jack. To enhance security, in some embodiments, the system of the present invention may include a separate Calling Unit with its own dial-out capability, which communicates at regular intervals with the Base Unit. If, for example, the Calling Unit does not receive the expected message that it is still active from the primary Base Unit, due to unplugging of the Base Unit, the Calling Unit transmits a message to the IMN that the primary Base Unit is inoperative. The IMN can then undertake appropriate investigation and/or notification steps, according to its programming. This Calling Unit can also act as the interface to the Telephone Network for all alarm messages, eliminating the possibility of defeating the alarm by cutting the phone line at the Base Unit or destroying the Base Unit. In another embodiment, the Calling Unit communicates with the IMN via wireless network channels to protect against alarm interruption due to the severing of telephone lines external to~~



~~the premises.~~

The IMN, having automatically received an alert notification from the premises where the monitoring devices are located, automatically accesses a data base, finds the particular owner's profile, and then also automatically sends interactive alert messages to phones, faxes, email devices, pagers, hand-held computers and or a manned monitoring center as previously specified by the owner. The use of the alarm system is electronically logged in the IMN so that it can be reviewed later.

~~It is an object of the invention to make it easy for the average home owner to install the above combination-coded cellular telephone base unit premises monitoring system per se, and communication system. The base unit, when not being used for monitoring purposes, can also be used for conventional telephone functions via the public switched local and long distance networks, and in some configurations, it can be connected to a TMSI data structure.~~

The system uses the information populated within the Customer Profile to instantly alert the customer and his contacts of the alarm event, for example, to warn them of an intruder on the premises or to alert them to another type of emergency event at the premises and enable them to make a decision as to whether the emergency authorities should be notified by the customer directly, or through a central station monitoring facility or guard service, or the event notification should be cancelled.

~~In summary, we are not aware of any other telephone based security system that interfaces with an Information Management Network that enables an individual to modify contact instructions and notification numbers which are stored in the customer profile. We are also not aware of any telephone based security system that is interfaced with an IMN to control a home security system and remote automation devices that could modify the home environment. We are also not aware of any other telephone based system that is able to communicate with an information network using DTMF tones, which then cause the network to process and send specified information to a series of different communications media, storing these call data in an event log in the phone and network for later retrieval. We are also not aware of a telephone based method to monitoring a communication system that transmits real time and current medical information to an Information Management Network, which then is capable of routing said information to multiple pre-designated points of contact. We are aware of no monitored home security alarm system that is highly transportable and can be easily moved to a different residence by a homeowner, renter, or small business owner.~~

The user can securely access the IMN via the Internet or telephone to program or re-program the user's customer profile, to include notification preference points, ordering of notifications, routing paths for different types of notifications, times for notification and other related information. This access is to a single universal access point. Receipt of information by the user can be confirmed and a record kept in the event log database of the IMN for retrieval at a later date by an authorized user.

~~The present invention addresses these shortcomings and combines all of the above components into a single comprehensive solution. Independent wireless units can be interfaced with the telephone Base Unit that allow for varied processes in connection with the same telephone. The user can select some or all of the available options including residential alarm, security units, personal communicators, transmitters, home automation and medical monitoring units. As other monitoring devices are purchased, the placing of a phone call or the input of information via the IMN, will be possible, quick and efficient adding of the new peripheral devices to each other's system.~~

The IMN permits the user to modify the pre-existing premises alarm notification call flow sequence by allowing the user to direct and manage the alarm notification process. Event notifications from the IMN are interactive and made sequentially to the contacts designated in the Customer's Profile, allowing the recipient of the event notification to determine the next action to be taken by the IMN in the call flow sequence. Authorized recipients are able to terminate or redirect subsequent event notifications by entering the correct pass codes digitally or through voice recognition technology.

Customers can select the number and ordering of contacts to be notified and queried prior to alarm event transmissions being sent to the central station monitoring facility for emergency authority dispatch. Customers can select to have a central station monitoring facility as part of the call flow sequence, or have notifications sent only to the contacts listed in their profile for those contacts to notify emergency authority for dispatch. Authorized users can access their Customer Profile via a pass code encrypted telephone or Internet interface, to change

alarm system configuration, update their points of contact, establish the order in which contacts will be notified based on the type of alarm event and review emergency information any time they desired. Using the pass code accessible Internet and telephone interfaces, users can access information about their accounts, including billing information, contact points, pass code information and alarm history. The invention also provides for externally specified and changeable control of alarm system operation and home automation devices via the IMN or from a remote telephone. Externally directed control of alarm system operation and home automation devices takes place via the IMN.

The ability to securely and easily update contact information at anytime and from anywhere allows the customer to be part of and closely manage the security notification call flow process and enhance his safety by directing alarm event notifications to contact him on specified devices early on in the event notification process. This feature, coupled with the user's ability to cancel an alarm notification prior to its being sent to the central station monitoring facility, influences the call flow sequence of alarm event information and reduces the incidence of false alarm dispatches. Authorized contact recipients are identified with user-determined pass codes, verified by a digital pin number or Voice Recognition pin number, prior to that person instructing the IMN as to the next step or steps of action to be taken in the call sequence. Another important feature is the logging of event notification information into the database of the IMN so that the customer can review it at a later date.

In this system users have direct, secure access to the monitoring network database via phone or the global computer network in order to review and change alarm system configuration, points of contact and emergency information any time they desire. Customers

have access to securely manipulate their personal information within their Customer Profile over the telephone or through a web interface, 24 hours a day.

Customers can elect to have central station monitoring facility back-up capability to be employed after one or more contacts listed in the Customer's Profile have been contacted and queried, and have failed to receive or respond correctly to the interrogation from the IMN. Customers can also elect not to have a central station monitoring facility as part of the call flow sequence and have the notifications sent only to the contacts listed in their Customer Profile. In all notification calls, customers are provided the opportunity to be transferred directly to the emergency authority for them to initiate a dispatch to the premises.

In certain instances, customers can select to have a central station monitoring facility or guard service notified for police or emergency dispatch, after one or more of the contacts listed in the Customer Profile have received the information and have either failed to properly cancel the event notification or have proactively instructed the IMN to contact the central station monitoring facility or guard service for dispatch. At the same time, recipients of alarm and event notifications are provided the local police number, as well as the ability to be transferred or conferenced with the local police or emergency authority.

Through the IMN, customers can also subscribe to receive notifications with content not related to the security or premises hardware. Such notifications include medication reminders, homeland security notifications and news events, transmitted at specific times, on specific dates, or under specific circumstances, and transmitted to a plurality of wired and wireless devices in text and voice formats as designated in the customer profile.

## BRIEF DESCRIPTION OF THE INVENTION

### BRIEF DESCRIPTION OF THE DRAWINGS

~~FIG. 1 is a system diagram of the present invention, including wireless portable devices, telephone Base Unit, and Information Management Network;~~

~~FIG. 2 is a diagram showing the flow of signals and messages when a sensor alert is triggered;~~

~~FIG. 3 is a diagram of a reset, reconfiguration or inquiry via the telephone network;~~

~~FIGS. 4a & 4b are diagrams of the relationship between the Base Unit and the Calling Unit. FIG. 4a shows a first embodiment in which the Base Unit and the Calling Unit are in separate housings, while FIG. 4b shows a second embodiment in which the Base Unit and the Calling Unit are in a single common housing;~~

~~FIG. 5 shows the communication between the Base Unit and the Personal Communicator Device (PCD);~~

~~FIG. 6 is a diagram of the flow of the signals and messages when a Personal Communicator Device (PCD) is used to initiate a call for emergency assistance, for example a "911" number;~~

~~FIG. 7 is a diagram showing how the Base Unit or calling Unit instructs a Telephone Location Switch to disconnect other telephone extensions and thereby make a telephone line available;~~

~~FIG. 8 is a diagram of the Information Management Network and the interface between the Base Unit and the IMN;~~

~~FIG. 8, 9, 10, show a preferred format of information profiles.~~

~~FIG. 10 shows a preferred structure of the Data Unit and~~

~~FIGS. 11, 12 show a preferred structure of a TCMU signal from the Data Unit to Calling Unit to the network.~~

1. Figure 1 is a diagram of the communication flow established by the Information Management Network.
2. Figure 2 is a diagram of the communication established by the Information Management Network including the central station monitoring facility or private guard service, the police, or other emergency authority.
3. Figure 3 is a schematic diagram depicting the hardware components of the Information Management Network and the communications portals into and out of the Information Management Network.
4. Figure 4 is a flow diagram illustrating the work flow process within the Information Management Network.

#### DETAILED DESCRIPTION:

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

~~FIG. 1 shows a typical but not all-inclusive embodiment of the system of the present~~

~~invention. The system includes a base unit 9, sensors 25-29, a calling unit 30 located either within the base unit 9a or as a separate unit 30b, telephone isolation switches 32, a personal communicator device (PCD) 40, and an Information Management Network (IMN) 50. In this description, PCD 40, sensors 25-29, and switches 32 are among the devices mentioned generically as "wireless peripheral devices" of the base unit 9. Base unit 9 may contain a telephone answering machine.~~

A Security or Premises Monitoring System has been previously described in the parent application, which has been incorporated by reference. The Security or Premises Monitoring System is connected by a communications circuit, which can be any of or a combination of elements selected from the public switched telephone network, a wireless network, digital subscriber line via modem, cable modem connected to a cable network, the internet, and any other communications network capable of transmitting dual tone multiple frequency tones or their equivalent. The Security or Premises Monitoring System connects on demand to the Information Monitoring Network (IMN) of this invention, described below.

~~As shown in FIG. 10, the base unit 9 preferably includes a telephone processor 21, alarm processor 22, built-in fire (not shown), and multi-spectrum RF radio 90 including an RF amplifier. The telephone processor 21 is interfaced with the alarm processor 22 in such a way that it is possible to call into the base unit 9 from a remote location to turn it on, turn it off, reconfigure or reset it, or to obtain status and alarm event information. This base unit 9 contains control and interface electronics in the form of a microcontroller such as (but not limited to) the~~



~~model DT-10477 available from the Motor ship company of Danbury, Vermont, U.S.A. Data unit may be either coded like a conventional telephone, or un-coded. However, in either case, DT radio 90 permits base unit 0 to exchange voice communications on a first radio frequency (e.g., 900 MHz) with a first wireless peripheral device such as DCIS 10, while simultaneously exchanging data communications on a second frequency (e.g., 200 MHz) with either DCIS 10 or with a second peripheral device such as a modem or a telephone isolation switch 22.~~

~~With respect to hardware, the IAN comprises at least a DTMF modem, an application interface, at least one server containing customer information databases, a unified messaging platform, an event log, a web interface, and a telephony interchange, such as a Private Branch Exchange Interactive Voice Response (PBX IVR) interface. (See FIG. 3). The at least one server comprises a server type computer the nature and configuration of which is well known to those skilled in the art. Those skilled in the art will also recognize that the network of this invention can be implemented with a variety of computing and communications hardware differing from those explicitly disclosed in this application but well known to those skilled in the art.~~

~~FIG. 8 shows the IAN 50, which simplifies routing of alarm notifications by providing single universal entry or access point, giving users quick access to predetermined connections. This network translates Dual Tone Multiple Frequency (DTMF) tones in preferred format of which is shown in FIG. 11, received from the base unit 0 or calling unit 20 into a message that sent in voice or text format to any number of user designated devices including telephone, fax,~~

~~mail address, or pager, etc. The IMN 50 may be accessed over a global computer network (i.e., the Internet), or by a standard telephone 81, to program a user's customer profile which includes notification preference points, times for notification and other related information, for each home resident, as shown in FIGS. 9A-9B.~~

The hardware and software configuration translates the DTMF tones received from the Security or Premises Monitoring System into a message capable of being sent in voice or text format. As the following will describe, the IMN enables sending the message to any number of customer designated devices including telephone, fax, email addresses, pager, or Personal Digital Assistant (PDA) such as a PALM PILOT.

~~Receipt of information by the user may be confirmed and a record kept in database event logs (not shown) of the IMN 50 and in the Base Unit 9. The IMN 50 also allows for a secure, passcode based, 2-way interface with the base unit 9.~~

Referring to Figure 1, alarm or event information is sent from the Security or Premises Monitoring System 1 to the remote Information Management Network 2 via any type of communication channel. The system retrieves user information and alert notification addresses (including but not limited to phone numbers, fax numbers email addresses, pager numbers, and Personal Digital Assistant device addresses) from the customer database and, as described in more detail below, forwards the alarm notification or medical information to the designated points of contact, simultaneously or sequentially. For an alarm notification, the

information conveyed includes the customer name, location of the base unit, phone number of base unit, date, time, type of sensor and zone.

~~Suitable security protocols are well known in the art and are available from various commercial vendors such as VERISIGN, ENTRUST, and Baltimore Technologies. This enables the user to control home and security functions and system configurations from remote locations using one's telephone or the global computer network. The following are examples of such configurations:~~

Sample Configuration	Description
Disarmed	Smoke detectors and personal communicator are active
Periphery Armed	Door and Window Sensors are Armed
Intrusion Armed	Motion Sensors are armed
Door Notification	Door Chime is active when door is open
Home Appliances Timed	Home appliances such as lights are controlled by timer
Home Appliances Sensor Activated	Home appliances such as lights are activated by sensors, such as motion detector

Interactive notifications are then sent from the Information Management Network to the contacts listed in the Customer Profile 17 (shown in Fig. 3) via at least one communication device, including cell phone, pager, email, SMS, landline phone, fax or text messaging device.

Contact recipients of the interactive alert notifications are provided the option to cancel the event

notification by providing a correct pass code using digital entry or voice recognition technology;  
send the alert notification to the next contact in the Customer Profile 17, or be transferred to or  
conferenced with the local emergency authority. There is no central station monitoring facility  
associated with the call flow sequence of Figure 1.

The IMN 50 can also transmit to the user a variety of informational services 52 such as  
maintenance prompts, multimedia alerting of news or financial events, messages, and other  
information requested by the user.

Referring to Figure 3, information sent from the Security or Premises Monitoring  
System 1 to the Information Management Network 2 enters the Information Management  
Network 2 through the Telephony Server 11, Cable Modem 12 or IP Server 14. Alarm  
information then flows through the Alarm Monitoring Engine 15 to the Database Server 16.  
Information regarding the specific account is stored in the Customer Profile 17 within the  
Database Server 16 that provides the work flow process for each alarm event. All alarm  
notification events are sent by the Interactive Messaging Server 18 to the customer contacts via  
landline phone, cell phone, text messaging device, pager, email, fax or SMS. The Interactive  
Messaging Server 18 can interrogate the contact recipient of the alarm notification for  
information and institute the appropriate work flow process based on the response of that contact.  
The results of all work flow processes are stored the Event Log 19 and can be reviewed by  
authorized individuals through the Telephony Interface into the Telephony Server 11 or the Web  
Interface through the Web Server 20. During a notification, customers are provided the option

to be connected to the police phone number listed in their Customer Profile 17 within the Database Server 16. This connection is made through the Telephone Conference Switching Mechanism 21. Alarm notifications associated with central station monitored accounts are transmitted from the Database Server 16 to the central station monitoring facility via the Interactive Messaging Server 18 following the call flow sequence designated in the Customer Profile 17. Access to the Customer Profile 17 and changes to said Customer Profile 17 are made through the Telephony Server 11, Customer Service Receiver 22 and Web Server 20 into the Information Management Network 2.

#### TELEPHONE PROCESSOR 21

~~As shown in FIGS. 1, 4a, 4b, 5 and 19, the telephone processor 21 includes an integrated circuit or circuit, which control all standard telephone functions such as speakerphone, corded or 900 MHz or 2.4 GHz cordless telephone interface, answering machine, line signaling, remote call in, caller ID, etc. The processing and switching device implementation of an existing corded or cordless answering telephone machine may be used, for example an MC681405 microcontroller (available from MOTOROLA, INC., Phoenix, Arizona, USA), with the remainder of the processing and electronics for alarm and calling unit functions residing on an interface board external to the telephone processor 21, all within the housing of the base unit 9.~~

Referring to Figure 4, the call flow processes are detailed for an alarm event. When the incoming signal is received by the Information Management Network 2, the signal enters the Alarm Monitoring Engine 15 and is immediately logged into the Event Log 19 within

the Database Server 16. The alarm notification string is parsed to determine information about the account. Using the customer identification number, the Customer Profile 17 within the Database Server 16 is queried for the alarm type and customer account information for the work flow processes.

#### ALARM PROCESSOR 22

~~An alarm processor 22 (AP), as shown in FIGS. 1, 1a, 1b, 5, and 10, located in the base unit 1 performs a variety of functions. A suitable commercially available chip is model PIC16C577 from Microchip (Chandler, Arizona, USA). Among other functions, the AP manages and terminates alarm and alarm system operation events (an alarm, a test, and inquiry); maintains and changes the base unit's operational status from active to standby; and logs significant event details, including low battery warning. The AP interfaces with the telephone processor 31 using a standard bus, such as an I2C bus, to obtain time, keypad information, and/or to receive incoming data signals from the telephone network and to pass data or Dual Tone Multi-Frequency (DTMF) information, e.g. in the format shown in FIG. 11. The AP responds to digital signals by outputting audible speech signals for responding to telephone or user inquiries. The AP also interfaces with the sensors 25-29 to receive alarm information and interfaces with a remote keypad (not shown). The AP manages system setup and configuration changes including those received through the IMN 50 or the normal telephone network 93. The AP interfaces with the calling unit 30a or 30b and provides transmission to the IMN 50 of message data such as test status, telephone number to be called, unit identification, alarm zone and other information, including sensor type. The AP interfaces with several RF telephone isolation switches 33 and~~

~~receives, implements, stores and manages downloading (a system in which programs are loaded into the memory of a computer system via phone or global computer network 01A). The AP maintains a log of retrievable (synthesized voice or I.C.D) event and configuration information (not shown). The AP manages appliances and sensor control for automation control devices, a number of which are commercially available, from various vendors.~~

~~For a central station monitored account, there are different workflows associated with non-critical, critical, panic, and fire events. In the event of a non-critical alarm, which represents a low battery event, AC Power loss or other non-critical event, the alarm event information is sent by the Notification Engine 23 within the Interactive Messaging Server 18 to the customer's non-critical contact on the device specified in the Customer's Profile 17. The results of this notification are stored in the Event Log 19 within the Database Server 16. In the event of a critical alarm, the information is sent to the customer's first contact using the Notification Engine 23 within the Interactive Messaging Server 18. The contact is given the option to cancel the alarm or send the signal to the central station monitoring facility 8 for dispatch.~~

#### ~~CALLING UNIT 20~~

~~As shown in FIGS. 1a-1b, the calling unit 20 of FIGS. 1 and 5 can be made in a first configuration 20a, within a single housing with the base unit 9 (FIG. 1b) or in a second configuration 20b, located remotely from the base unit 9, in a separate housing (FIG. 1a). The primary attribute for a remote calling unit 20b is the ability to place the calling unit in a hidden~~

~~vention to prevent intended or unintended disabling of the system by an intruder. This is~~  
~~accomplished by the unique design feature that whenever a sensor emits an alarm, the alarm~~  
~~processor 32 immediately generates an alarm message and sends this alarm message by a direct~~  
~~transmission to the remote calling unit 30b, which stores it in memory. If the remote calling unit~~  
~~30b does not receive an alarm cancellation message from the alarm processor 32 within a brief~~  
~~specified period of time, the alarm information is transmitted to the IMN 50 via the telephone~~  
~~network 17. Conversely, if the alarm is cancelled by entering the correct alarm code on a~~  
~~keypad at the base unit 9 within the specified period of time, the base unit 9 sends an alarm~~  
~~cancellation message to the remote calling unit 30b and the alarm is cancelled, prior to~~  
~~transmittal to the IMN 50.~~

~~If the contact request's that the central station monitoring facility 8 be notified for~~  
~~the dispatch of the authorities, the Notification Engine within the Interactive Messaging Server~~  
~~18 sends the alarm transmission to the central monitoring station 8 for authority dispatch and the~~  
~~results of the work flow process are stored in the Event Log 19. All other contacts listed in the~~  
~~Customer's Profile 17 are then notified that alarm event notification was sent to the central~~  
~~station monitoring facility 8.~~

~~As shown in FIGS. 2 & 7, in the case of an actual alarm, the remote calling unit 30b~~  
~~receives the alarm message from the alarm processor 32, briefly waits for possible cancellation,~~  
~~then seizes the telephone line by use of the telephone isolation switches 33 (FIG. 7, right). The~~  
~~remote calling unit 30b then dials and delivers the message using DTMF coding to the IMN 50~~



~~and stand by to receive a confirmation report from the IMN 50 that the alert has been received. The remote calling unit 20b passes this report to the alarm processor 32 for logging and activation of an ALARM RECEIVED light (not shown) on the base unit 0, and then releases the phone line for further use. In the embodiment which includes an internal calling unit 20a rather than an external calling unit 20b, the process is the same, with the exception that the alarm message is not transmitted to the calling unit 20a wirelessly but by a hardwired interface internal to the base unit 0.~~

~~If the alarm notification information is sent to a device where the contact chooses to cancel the alarm event, the customer's notification cancel code is requested. If the correct alarm notification cancel code is entered, the alarm notification event and work flow process are cancelled and the information of the work flow process is stored in the Event Log 19.~~

~~As shown in FIG. 8, the calling unit 20 may be connected to a wired telephone network 62 or a wireless telephone network 94 or to a wired or wireless data network. In a configuration such as this, the calling unit 20 can dial out wirelessly in the event that the landline becomes unavailable (e.g., due to adverse weather conditions disrupting the public switched telephone network (PSTN), or due to a burglar's cutting telephone wires leading to an individual house).~~

**In a wireless interface, the calling unit 30 will pass information to the wireless network via any of numerous available protocols such as: CDPD (Cellular Digital Packet Data), Circuit Switched Cellular, Overhead Control Channel Technology and/or Forward Control Channel Technology. These data will be passed to a mobile telephone switching unit 94 and routed through a receiving**

~~modem 5 in the Information Management System 54 to a processor which contains an application program interface (API) 66. This processor uses the data contained in the output signals from the modem to extract additional relevant data from a customer database 67. The processor then sends commands containing customer specific information to an event notification server 69 within the IMN 50. The calling unit 20 may also be programmed to initiate transmission of the alert message via both landline and wireless networks simultaneously, depending upon how much expense is tolerable and what level of reliability must be achieved. In either scenario, the alert message is created in a client 5 as described above. If the base unit is tampered with, the call will automatically be initiated from the calling unit 20. The calling unit 20 is not used for Emergency Dispatch or Police requests "911" in North America or other transmits to a call.~~

~~\_\_\_\_\_~~ If the incorrect alarm notification cancel code is entered, the customer is requested to re-enter the code. If an invalid alarm notification cancel code is entered second time, or no code is entered, the work flow process moves to the next contact listed in the Customer's Profile 17 and the notification process is repeated. When the second contact is notified, if there is no answer, an invalid cancellation code is entered or the contact selects to have the central station monitoring facility 8 notified, the alarm event is sent to the central station monitoring facility 8 for authority dispatch and the information is stored in the Event Log 19. In any case where a valid alarm notification cancel code is entered, the notification event and the workflow process are cancelled, and the information regarding the cancellation of the alarm event notification is stored in the Event Log 19. In any case where the central station monitoring facility 8 is notified

for dispatch, all remaining contacts are notified that the alarm event was sent to the central station monitoring facility 8 and the information is then stored in the Event Log 19.

When an alarm notification is sent, if the notification is unable to be delivered by the Information Management Network 2, if the line is busy or there is no answer by the first contact listed in the Customer Profile 17, the workflow process moves to the next contact listed in the Customer Profile 17.

#### FIGURE 4: JACK ISOLATION SWITCHES 22

~~FIG. 4 shows the arrangement of the telephone isolation switches 22 within the overall system. FIG. 7 shows the interface between the base unit 9 and the telephone jack isolation switches 22. The switches 22 are controlled by wireless signals, preferably RF signals, in the 200-250 MHz band, from the base unit 9, in order to disconnect any off-hook telephone or other terminal equipment at its RJ-11 jack. This is accomplished by a remote controlled double pole double throw (DPDT) switch or similar mechanism. Each isolation switch 22 comprises: an RJ-11 telephone jack interface module with internal RF receiver which will reside externally or internally to the wall jack surface; an input receptacle for acceptance of an RJ-11 plug; an output plug for interface with an existing RJ-11 jack (e.g. in the wall); and a power source such as a battery or line voltage converter. This device ensures that the calling unit 30 will be able to make a sensor or intentional alert notification when needed, even though someone else might be on the line or a burglar might have taken the telephone off hook to try to prevent a call for help.~~

If the first contact is answered by a voice mail or answering machine, the

Notification Engine 23 within the Interactive Messaging Server 18 recognizes that it is not a live person, leaves a message and the work flow process moves to the next contact listed in the Customer's Profile 17. If the next contact is not answered, is answered by a voice mail or answering machine, or is answered and the correct alarm notification cancel code is not entered, the Notification Engine 23 within the Interactive Messaging Server 18 leaves a message where applicable and the alarm event notification is sent to the central station monitoring facility 8 and the remaining contacts listed in the Customer Profile 17 are notified that alarm event was sent to the central station monitoring facility 8. This information is then stored in the Event Log 19 within the Database Server 16.

~~WIRELESS SECURITY DEVICES AND DIGITAL SERVICES~~

~~1. The following is a schematic of the system 25-29, capable of communicating via RF in an alarm process 23 and 16, on any of a variety of radio frequency bands, including but not limited to, 200 MHz, 400 MHz, 900 MHz, 2.4 GHz or frequency band, the signal format according to the Bluetooth standard now under development. In order to eliminate signal interference, the base unit 24 preferably capable of using separate frequency bands for simultaneous voice transmission and data transmission. For example, voice channel transmission may be broadcast in the 900 MHz band, while secure data transmission may utilize the 200 MHz band simultaneously. Three leading security device makers are Digital Security Controls, Ltd. of Concord, Ontario, Canada ("DSC"), the L3 Technologies division of Interlogix, Inc. of St. Paul, Minnesota ("L3"), and the Lincon Corporation subsidiary of Northrop Grumman of California ("Lincon"). The following is a schematic of the device~~

~~are commercially available and will operate within the frequency capabilities of the alarm processor 22.~~

~~Smoke sensor (25), Linear Model DYS 72.~~

~~Pressure detector (26), FFI Model 60-712-05D.~~

~~Glass break detector (27), DSC model AMS-100 or~~

~~Glass break with shock detector (27), Linear model DXT-01.~~

~~Door - Pulse heat sensor, FFI Model 60-160-210-5.~~

~~CO (carbon monoxide) detector, FFI model 60-652-05.~~

~~Motion - Passive Infrared (PIR), Linear model DYS 54.~~

~~Smoke sensor model, DSC model WLS-006.~~

~~Magnetic door window sensor, Linear Model DYS 24.~~

~~Water detector, FFI model 60-711-05.~~

~~It would also be possible to use the above described system to connect to optional medical sensors such as those for:~~

~~Blood pressure, 20, blood sugar (glucose) level 20, pulse, etc.~~

~~Such sensors are available from Hewlett Packard, Medtronic and other vendors. The system could also connect to home automation control modules, including light, environmental, appliance and audio-visual control devices (not shown), various models of which are available from FFI and DSC (mentioned above) and other companies.~~

~~In the event of a fire or panic alarm event, the information is sent directly to the central station monitoring facility 8 and all of the customer contacts listed in the Customer~~

Profile 17 are notified of the alarm event. The information is stored in the Event Log 19. There are no cancellation privileges associated with these events.

#### PERSONAL COMMUNICATOR OPERATION

As shown in FIG. 5, a preferred embodiment of the present invention includes a portable wireless device, the Personal Communicator Device 10, which contains a PTT D button 12, a FAX/E button 14, a timer/picker 16, a speaker 18, and a built-in antenna 20. When one of the buttons is pressed, this generates either a Data Alert Message 22 or a packet of Voice Data 24. Data may be sent, for example, at 200 MHz or 400 MHz or 2.4 GHz, although a less frequent embodiment, both data and voice transmission may utilize 900 MHz or 2.4 GHz or other available frequencies. Available transmitter circuitry may include 1214, and available receiver circuitry may include 1215, both available from Motorola Corp., Phoenix, Arizona, U.S.A. These circuits are operable in both the 200 MHz band and the 400 MHz band. If the FAX/E button 14 is optionally installed, then when it is pressed, the base unit 10 will initiate an emergency number (e.g., "911" in North America) directly and, in a configuration, upon termination of the "911" call, an alert notification is sent from the base unit 10 through the calling unit 20 to the Information Management Network 50, which then sends an automated message to alert the owner or designated individual that an emergency call has been made. This alert can be sent via in any desired form, such as voice data or fax messaging, to any of a variety of receiving terminals, such as a pager, cell telephone, Personal Digital Assistant (PDA), e-mail, Wireless Application Protocol (WAP), enabled device, or fax. Alternatively, if the PTT D button is pressed, a data alarm message 22 is sent to the IMN 50 and is forwarded from there to the customer

~~choice of receiving device.~~

~~For an account that does not have central station monitoring, there are different workflows associated with non-critical, critical, panic, and fire events. In the event of a non-critical alarm, which represents a low battery event, AC Power loss, or other non-critical event, the information is sent to the customer's non-critical contact on the specified device, using the Notification Engine 23 within the Interactive Messaging Server 18. The results of this notification are stored in the Event Log 19 within the Database 16.~~

~~In the event of a critical alarm, the information is sent to the customer's first contact using the Notification Engine within the Interactive Messaging Server 18. The contact is given the option to cancel the alarm event or send the signal to the next contact listed in the Customer's Profile 17.~~

#### ~~CALL CENTER SECTION 4~~

~~A, shown in FIG. 9, the base unit 9 contains a CALL CENTER button 81. This button may operate as an auto-dialer to connect the Base Unit 9 to an Interactive Voice Response (IVR) system 92 (FIG. 8) through the IMN 50 for the user to access customer service and other automated services through the network, including modifying his profile in a database.~~

~~FIGS. 9A, 9B, show a suitable format for the information provided by a customer or user, which is stored in the Information Management Network. All transactions between the base unit 9 and the IMN 50 will be logged into a database event log 70 in the IMN, and into a similar log in the base unit 9.~~

If the contact chooses to cancel the alarm event, the customer's notification cancel code is requested. If the correct alarm notification cancel code is entered, the alarm notification event and work flow process are cancelled and the results of the work flow process are stored in the Event Log 19. If the incorrect alarm notification cancel code is entered, the customer is requested to re-enter the alarm notification cancel code. If an invalid alarm notification cancel code is entered a second time, or no alarm cancellation code is entered, the work flow process moves to the next contact listed in the Customer's Profile 17 and the process is repeated. This work flow process will continue through all of the customer contacts until the alarm event is cancelled using the correct alarm notification cancel code. With each notification, the contact is given the information about the alarm event, including the name, address and system zone activated, as well as the police phone number to contact in the event of an emergency. During the process, the contact is given the option to have the notification sent to the next contact listed in the Customer Profile 17; given the option to cancel the notification; or be connected directly to the police phone number listed in his Customer Profile 17. In any case when a valid alarm notification cancel code is entered, the notification event and the workflow process are cancelled and the information is stored in the Event Log 19 within the Database Server 16.

When an alarm notification is sent, if the line is busy or there is no answer by the first contact listed in the Customer Profile 17, the workflow process moves to the next contact listed in the Customer's Profile 17 to continue the work flow process.

INFORMATION ALARM/ALARM/NOTIFICATION 50



The Information Management Network (IMN) 50 is shown in FIGS. 1 & 8, and in the combination of a FAX/FI modem 65, a message renderer 69, an Application Program Interface (API) 66, a series of servers containing customer information databases 67, a unified messaging platform, an event log, a web interface, and a Private Branch Exchange Interactive Voice Response unit 82. In combination with the base unit 9, the calling unit 30, telephone isolation switches 22 and network 25-29, the IMN 50 provides an automated notification system capable of receiving alert inputs from wireline, wireless, or cable communication networks, and capable of delivering an alert message notification to specified points of contact via the wide range of commercially available communication media.

In the same event, if the notification is answered by a voice mail or answering machine, the Notification Engine 18 recognizes that it is not a live person, leaves a message and the work flow process moves to the next contact listed in the Customer's Profile 17. If the next contact is busy, not answered, answered by a voice mail or answering machine, or answered and the correct alarm notification cancel code is not entered, the Notification Engine 18, leaves a message where applicable and moves to the next contact listed in the Customer's Profile 17. This process continues through all of the contacts listed in the Customer's Profile 17 until the correct alarm notification cancel code is entered to cancel the work flow process.

After the work flow process has attempted contact with all devices listed in the Customer's Profile 17, the Notification Engine 23 within the Interactive Messaging server 18 will try to send the alarm notification to those devices that were busy or where there was no answer to attempt to deliver the alarm event notification information.

~~In a preferred embodiment of the system, an interface is provided to transmit data to the alarm processor 31 resulting in the calling unit 20a or 20b, conveying the alert message 4-DTMF signals 6.13. These signals are then forwarded to a local Exchange Carrier (LEC) 6.2 which in turn transmits the data over a Public Switched Telephone Network (PSTN) 6.4 to the IMN 50 via a predetermined phone number into a DTMF modem 6.5. An acknowledgment message is then sent back (ACK/NAK) query is exchanged with the calling unit 20a or 20b, indicating that the modem 6.5 has received the information. This ACK/NAK exchange indicates to the base unit 0 that the data have been received and the base unit 0 stores this information in an event log in the alarm processor 32 and transmits an ACK/PRI (PRIORITY) indication to the base unit 0.~~

~~In the event of a fire or panic alarm event, all of the customer contacts listed in the Customer Profile 17 are notified of the event and the results of the notification are stored in the Event Log 19 within the Database Server 16. There are no cancellation privileges associated with these events.~~

~~Confirmation that the alarm notification has been successfully transmitted to the customer's designated device(s) is housed in the event log and also in the Security or Premises Monitoring System. In a preferred embodiment, the IMN allows for a two-way communication interface with the base unit. In this way, the present invention allows for remote activation or resetting of the alarm and other devices in the home for security and home automation purposes, through the initiation of a phone call or global computer network transmission to the IMN. The~~

IMN also allows the customer to preprogram alarm and home automation functions to initiate specific processes at specified times of the day.

~~The modem then converts the DTMF analog signals 61A to digital signals and passes the data to an Application Program Interface (API) 66 residing on a customer database server 67 operating according to a standard commercially available database program such as SQL (Structured Query Language). The API 66 evaluates a data stream header field, forming part of the received digital signals, and extracts specific alert information such as station ID and type of alarm transaction (station sensor, etc.). The API 66 provides this data to other programs running on the SQL customer database server 67 for further processing.~~

~~The customer database server 67 then generates and sends an alarm notification to an event notification server 68 which contains pre-designated customer contact information. The event notification server 68 forwards the data to a message renderer 69, which converts it into the format required for respective appropriate event servers 70. These include, but are not limited to, a phone server, a fax server, a pager server, an e-mail server, a cell server, or even a manned monitoring center 71. As shown at the bottom of FIG. 2, a human security representative (not shown) in the manned monitoring center 71 will be alerted that customer's location has had a sensor alert transaction. After successfully sending the alerts and notifications, the IMN 50 issues a confirming report that an alert has been received and passes this information to the database event log 79 for retention as transaction history. The server/database 67, event log 79 and the alarm processor 32 will maintain a record of confirmation that the alert messages were in fact received. The customer database server 67 will pass notification of any message transaction~~

The Information Management Network 2 can be programmed to forward certain alarm event transmissions directly to the central station monitoring facility 8 while other event transmissions are sent to the central station monitoring facility 8 only after the first, second, third or fourth transmission to the contacts listed in the Customer Profile 17.

Referring to Figure 3 again, the account information in the Customer Profile 17 within the Information Management Network 2 can be populated by the customer or other authorized individual via a secure web interface on the Web Server 20 or via a secure telephone interface using the Telephony Server 11. To access their Customer Profile 17, customers are required to provide their personal user name and a unique personal pass code. Through these interfaces, authorized individuals can customize their personal account information to add, delete or modify their pre-designated contacts and designate the order of alarm event information transmissions to their contacts, modify their home address, phone number, police contact number, and billing information. Any change made to data within the Customer Profile 17 is automatically sent via PSTN or Internet interface to the central station monitoring facility 8 to update the customer's account information on a real time basis. This transfer of information applies only to those customers subscribing to central station monitoring services, which services serve as a complement to the alarm notification call flow process made by the Information Management Network 2.

~~An alarm in the right half of FIG. 7, the customer account database 79 can be accessed via~~

~~the global computer network 74 with a Web interface through a protective firewall 75 and INTERNET connection 76 or via standard telephone lines through a PBX/IVR 82 interface.~~

~~Access to the customer access database 78 facilitates input and modification of user notification profile information and retrieval of sensor alert records to determine alarm activation and test history. Any input or modification to user notification profile records will be initiated in the customer access database 78, which in turn, will forward relevant profile information to the customer database server 67 for event retrieval. This functionality inhibits unauthorized electronic access to the customer database and server 67. The use of a Personal Identification Number (PIN) validation query (not shown) provides the user with secure and personal access to his database information. As previously noted, suitable security protocols are well known and are available from vendors such as VERISIGN, ENTRUST, and Baltimore Technologies.~~

#### ~~MANNED MONITORING CENTER 71~~

~~Optionally, as shown in FIGS. 1 & 8, the user can elect for the IMN 50 to notify the Manned Monitoring Center 71 (MMC) of the alarm. The operator at the MMC 71 will then call the unit location and speak with the customer or listen through the base unit 9 or PCD 10 microphone for abnormal sounds in the customer's residence, in order to verify the alarm. If the alarm is determined to be valid, the MMC 71 notifies the appropriate public safety officials (fire, police, campus or nursing home security).~~

#### ~~MODE OF OPERATION MAJOR EVENTS/SCENARIOS:~~

~~System operation is organized around several events or system operational scenarios,~~

~~as described below:~~

#### ~~ALERT EVENT~~

~~A flow diagram of an alert event sequence is depicted in FIG. 2. An alert event is initiated when a sensor is activated at step 101 or a distress button is pressed, such as HIBID button 12 on the Personal Communicator Device 10 (FIG. 5). The signal from one of these peripheral devices passes, in the form of an RF signal, to the alarm processor 22 (see FIG. 5, 10) and FIG. 10, left). The alarm processor 22 correctly decodes and validates the alarm signal at step 102 (FIG. 6). If the signal denotes a security sensor activation and the system is in the ALARM/ARMED mode, an audible siren (not shown) is sounded within the base unit 0 and remotely, if an optional remote siren (not shown) is added. If the system is in the STANDBY or CHIME ONLY mode, the alarm processor 22 takes no action, or rings the chime, respectively. If the event is initiated by a smoke sensor 25 (FIG. 1), the internal siren (not shown) will sound regardless of armed or disarmed status.~~

~~In the event of activation of a security sensor 27 (FIG. 1) while the system is armed, activation of smoke sensor 25, the alarm processor 22 will deliver an alarm message at step 103, send it to the calling unit 20 and wait a brief period of time for alarm cancellation. If the alarm is not cancelled within the prescribed period, the base unit 0 seizes the line and send a signal (preferably 2700 MHz) to the telephone isolation switch 23, as shown in FIG. 7, directing the switches to isolate all telephone lines.~~

~~According to an alternate scenario (FIG. 8, top left), the base unit 0 initiates a wireless data call through a wireless transmitter using Personal Communication Services (PCS), cellular or long range radio protocol, etc. (10). The base unit 0 dial an access number of the FAX 50, in any~~

~~event, this alarm message includes the unit ID, unit telephone number, alarm type, zone, whether it is a test, and the IMN 50 access number to be dialed. The calling unit 30 receives the alert information from the alarm processor 22 in a wired or wireless interface and validates it in step 103.~~

~~In the embodiment comprising a separate calling unit 30b, the signal is transported wirelessly via RF between the alarm processor 22 and the calling unit 30b. The calling unit 30b then stores the message in step 105 and waits a brief period of time for alarm cancellation. Cancellation is accomplished if an authorized user enters a correct code 112 (FIG. 2, top right) in the keypad on the base unit 0 or a remote keypad unit (not shown), and the entry is logged in step 113. If the alarm is not cancelled within the prescribed period of time, the calling unit 30 seizes the telephone line in step 106 and sends a signal to the telephone isolation switcher 23 to isolate all premises telephone jacks.~~

~~According to another alternate scenario, the calling unit 30 initiates a wireless data call through a wireless transmitter using PCS, cellular, or Long Range Radio (LRR) protocols. The calling unit 30 dials the access number for the IMN 50. When a connection is established with the IMN 50 via the modem 65, the alert event message data is passed to the API 66 for conversion and transfer into the event notification server 68, as shown in FIG. 8. The calling unit 30 stays connected, awaiting an acknowledgment (ACK/NAK) verification message from the IMN 50 that the alarm message has been received, authenticated and validated. This is indicated by the leftward pointing arrow from modem 65 in FIG. 8. In step 107, the calling unit 30 then initiates a log entry in the alarm processor 22 and, in step 108, releases control of the phone line. Then, in step 109, the IMN 50 sends alerts as previously instructed by the owner of the base~~

~~unit.~~

~~If the customer does not subscribe for the services of a manned monitoring center (MMC) 71, the IMN 50 directs an alert notification message to the MMC 71. Then, in step 110 (FIG. 2), the MMC 71 will attempt to send alert messages to verify the alert condition via a direct telephone call to the base unit 0. Following standard monitoring center protocol, for a verified alert event notification will result in a call to public safety officials such as fire, police and/or emergency medical technicians (step 111).~~

~~To end the event a password protected reset can be accomplished through the base unit 0 (generally in the DTMF line in step 112), and is logged in the alarm processor 22 display on the base unit (step 112). Alert event termination is accomplished via the password reset or in a pre-select time limitation (e.g., 5, 10, 15 minutes).~~

#### ~~RESET, INQUIRY, OR RECONFIGURATION CAPABILITY (FIG. 3)~~

~~FIG. 3 presents the flow of information in a reset, inquiry, or reconfiguration event. A reset, inquiry, or reconfiguration event occurs when the alarm processor 22 configuration or operational status is changed, or the alarm processor 22 is asked to provide alarm or configuration information to an authorized user who has the correct password or to the IMN 50. The two-way information flow capability of the desired invention is accomplished by the telephone processor 21 passing DTMF control and inquiry signals to the alarm processor 22. In a reset or reconfiguration event, the user generates keypad input signals to enter or change a password, reset the unit, turn the unit on or off, delete or add zones and sensors, change alarm options or thresholds. Alarm processor directed synthesized voice prompts guide the user through the available change inquiry options. Alternatively, the user can call the IMN 50 using a~~



~~DDN IVR, or access the IMN 50 via the global computer network to accomplish reset, reconfiguration, and other control options (115).~~

#### ~~PERSONAL COMMUNICATOR DEVICE 10 ALARM EVENT~~

~~The Personal Communicator Device 10 contains three or more special function buttons which facilitate the following communication transactions:~~

~~011 Emergency Exchange Call~~

~~Programmed Speed Dial to contact desired phone numbers (then dial in Family, Friend)~~

~~Personal Distress Alert Notification~~

~~FIG. 5 shows the interface between the personal communicator device 10 and the base unit 9. Programmed Speed Dial calls and 011 Emergency Exchange calls are accomplished by the telephone processor 21 in a manner consistent with a normal base unit 9 telephone call.~~

~~As shown in FIG. 6, activation of a "011" emergency exchange call initiates an alert message to the IMN 50 for notification to the designated points of contact advising that a 011 emergency exchange call has been placed from the base unit 9. The third type of alarm, the Personal Distress Alert, is processed by the alarm processor 22 as a sensor alert signal to the IMN 50. Notification procedures for this type of sensor alert message are depicted in FIG. 2. Specific contact and response actions are defined by the instructions which the user has programmed into his personal database profile. If the user has subscribed to the manned monitoring center 71 option, the IMN 50 will forward an alert message to the MMC 71 for verification and assistance.~~

~~It will be apparent to those active in the security and medical monitoring fields that~~

~~various changes and modifications are possible within the scope of the inventive concept. In particular, features of one embodiment could be combined with features of another embodiment. Therefore, the invention is not limited to the specific embodiments shown and described, but rather is defined by the following claims.~~

**APPENDIX B: REQUEST TO DELETE AN INVENTOR**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

---

Applicant(s): Layton, P., et al.

Group Art Unit: 2683

Application No.: 09/714,841

Examiner: Tran, CongVan

Filed: 11/20/2000

Title: Combination Wireless Alarm System  
and Telephone Connected to an Information  
Network for Automated Delivery of Alarm  
Notifications and Other Information

Attorney Docket No.: 26016.0.1

---

REQUEST TO DELETE AN INVENTOR

Commissioner for Patents  
Mail Stop Non-Fee Amendment  
P.O. Box 1450  
Alexandria, VA 22313

Dear Sir:

Please delete "Sidney Skjei" as an inventor in this application.

REMARKS

The foregoing requested change of inventorship is occasioned by the recent election  
required by a restriction requirement and by the amendment of the claims herein.

Respectfully submitted,



Frederick C. Williams  
Reg. No. 36969

Date: January 5, 2004

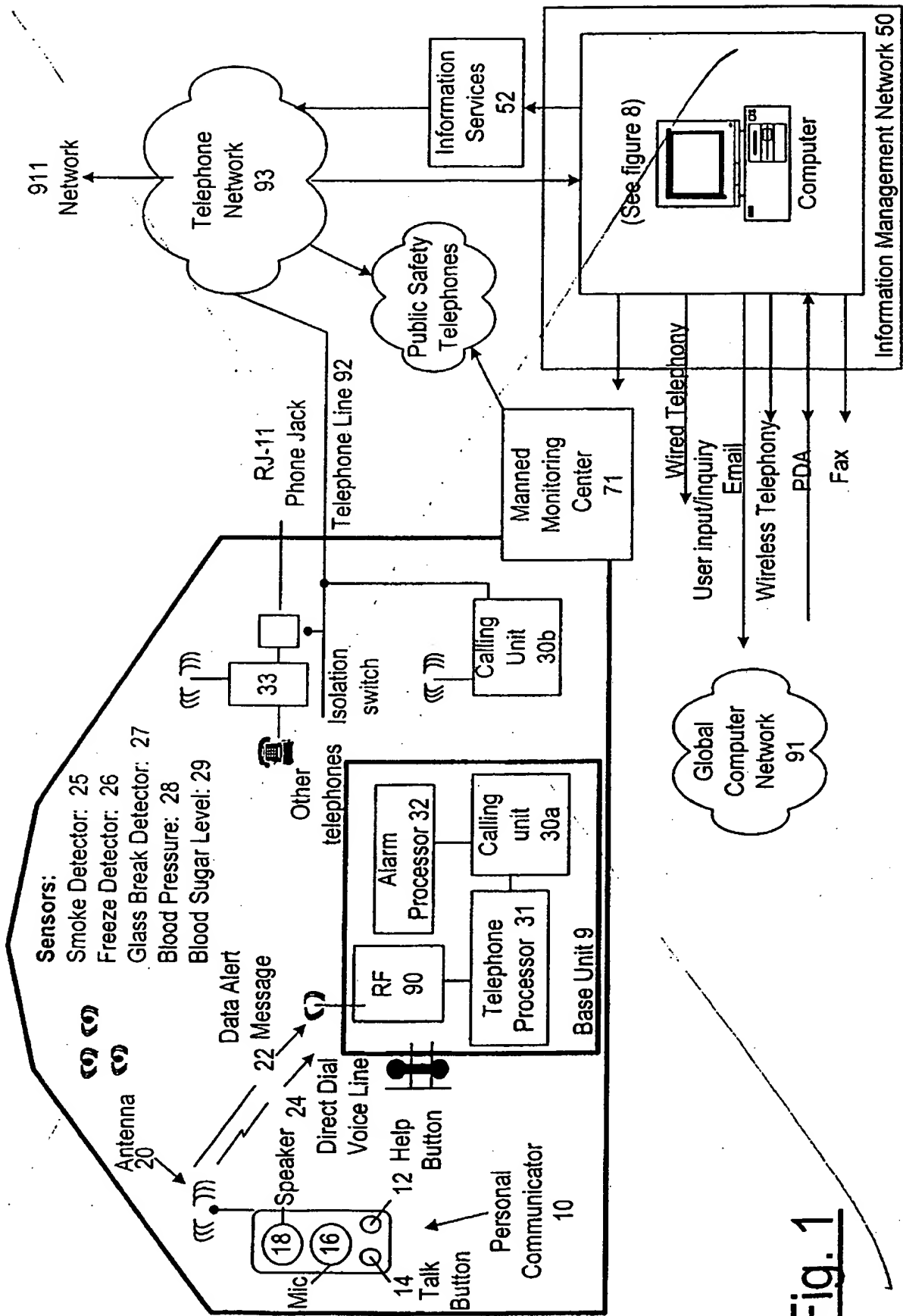
Frederick C. Williams  
Burns & Levinson LLP  
1030 Fifteenth Street, N.W.  
Suite 300  
Washington, DC 20005-1501  
Tel. (202) 842-0445

09/714,841

PRELIMINARY AMENDMENT

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## APPENDIX C: RED LINE DRAWINGS



**Fig. 1**

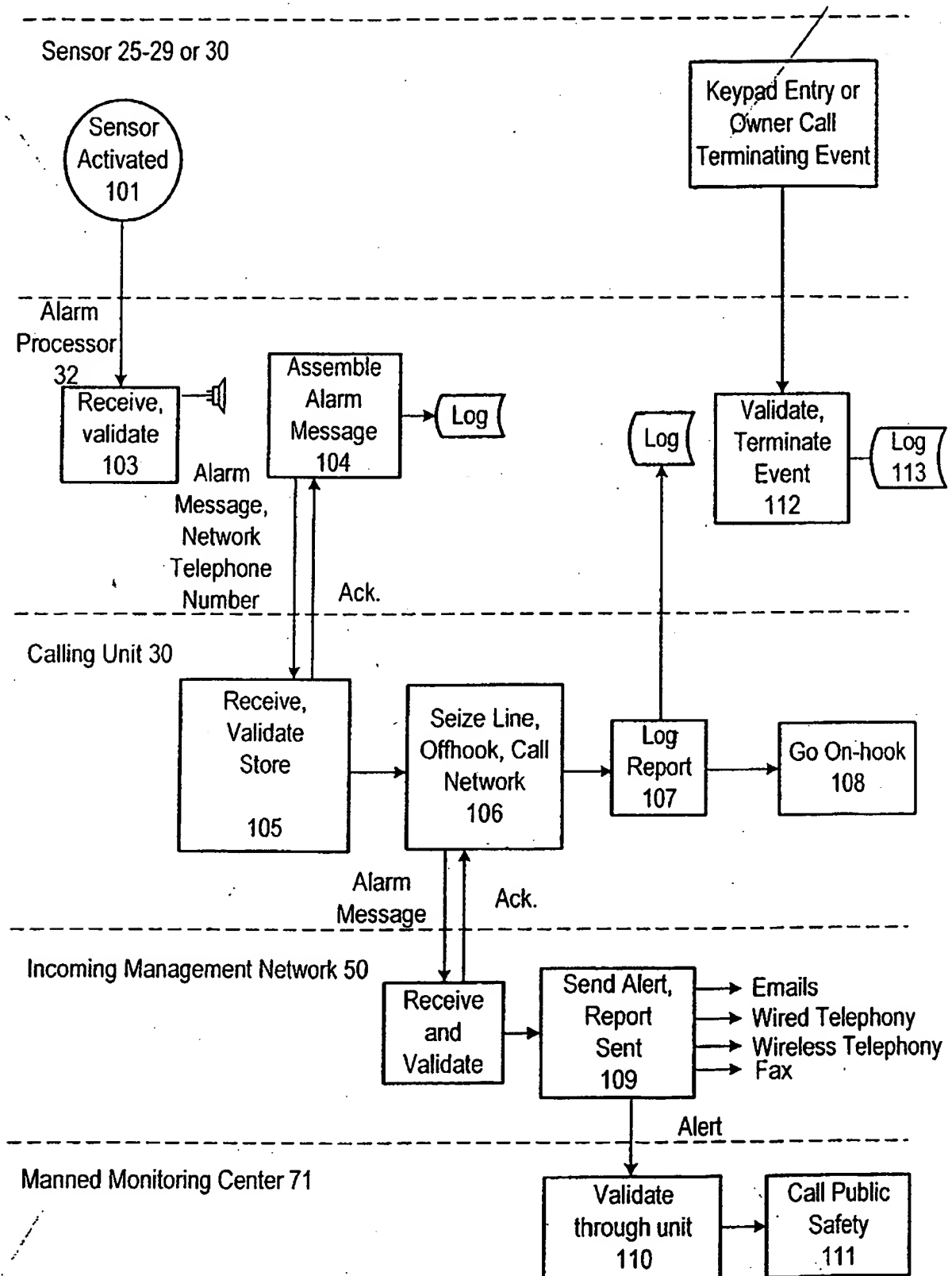


Fig. 2

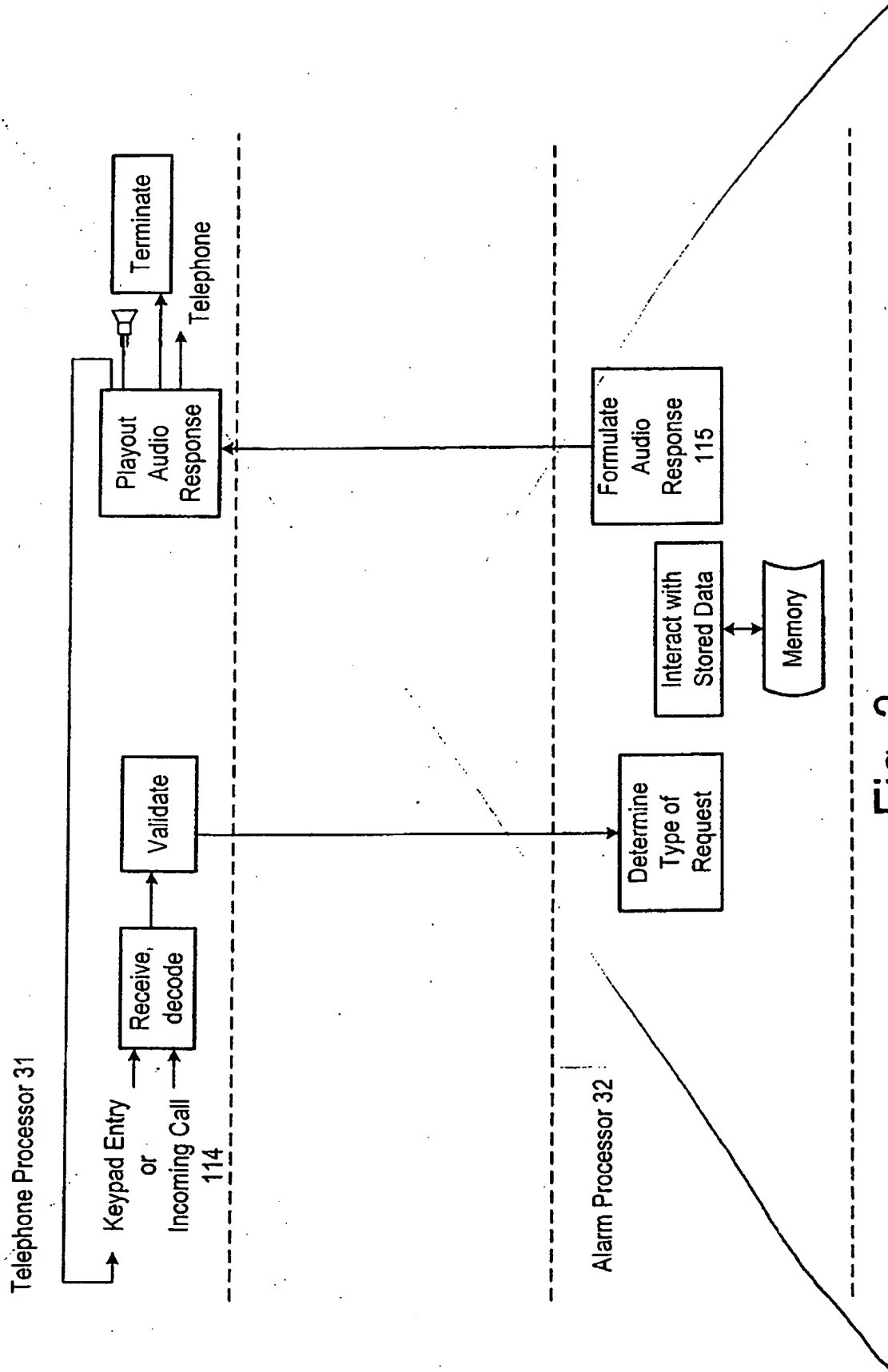


Fig. 3



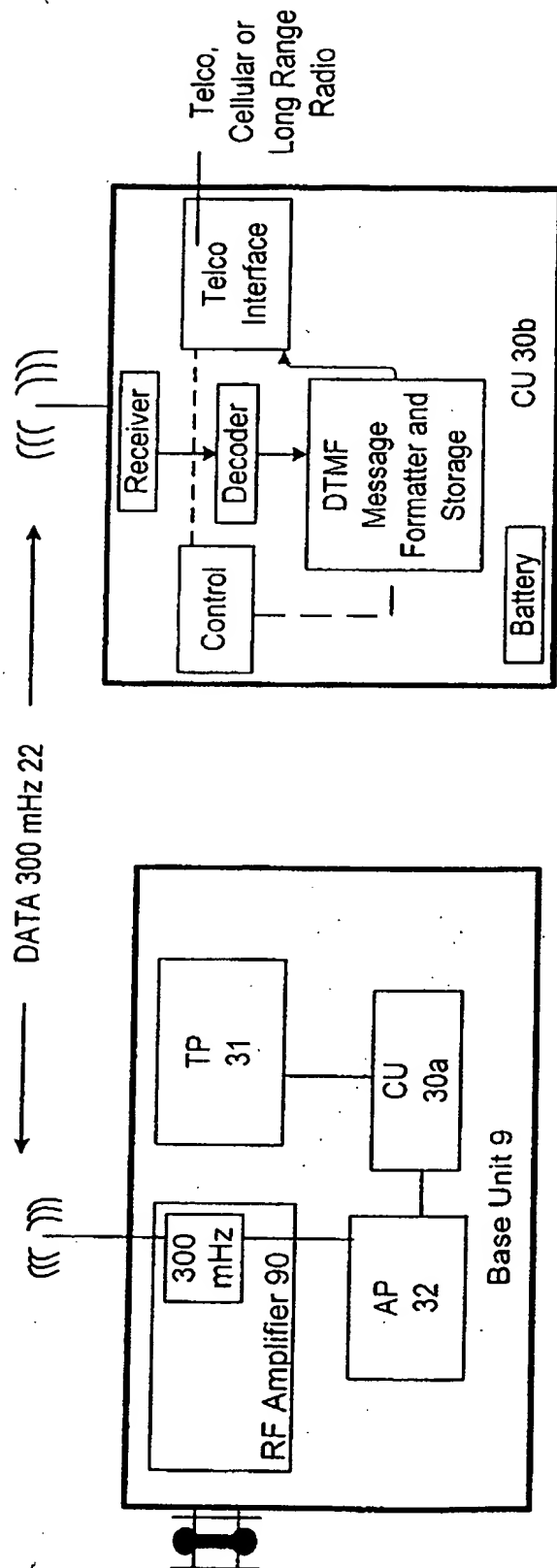


Fig. 4a

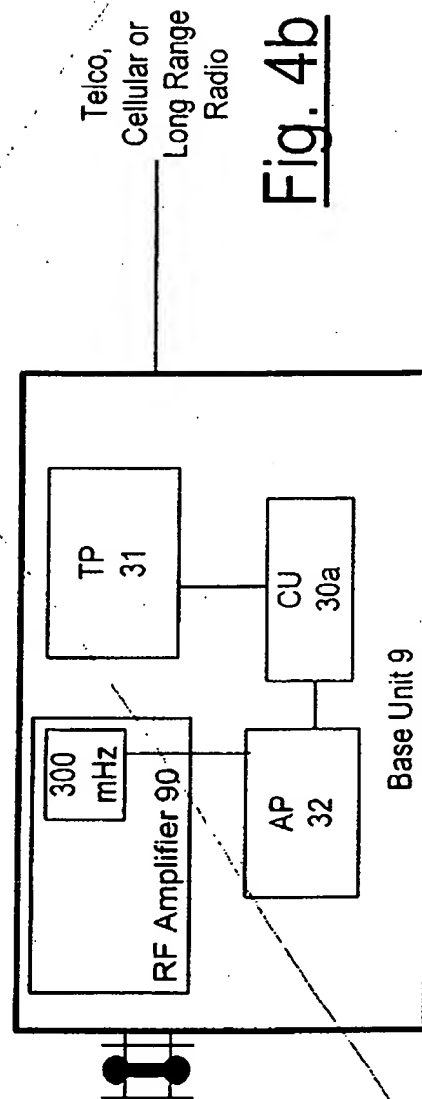
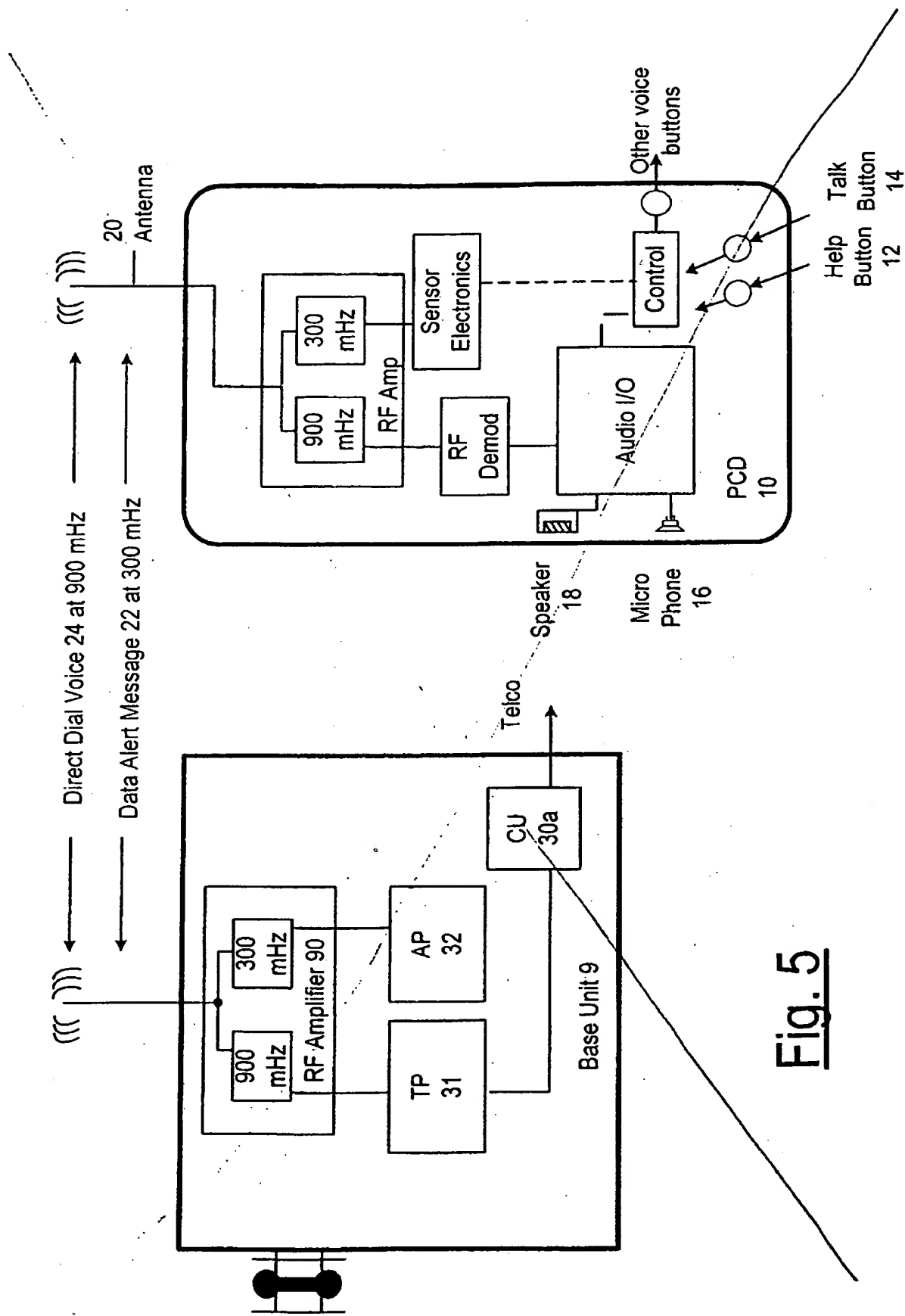


Fig. 4b



**Fig. 5**

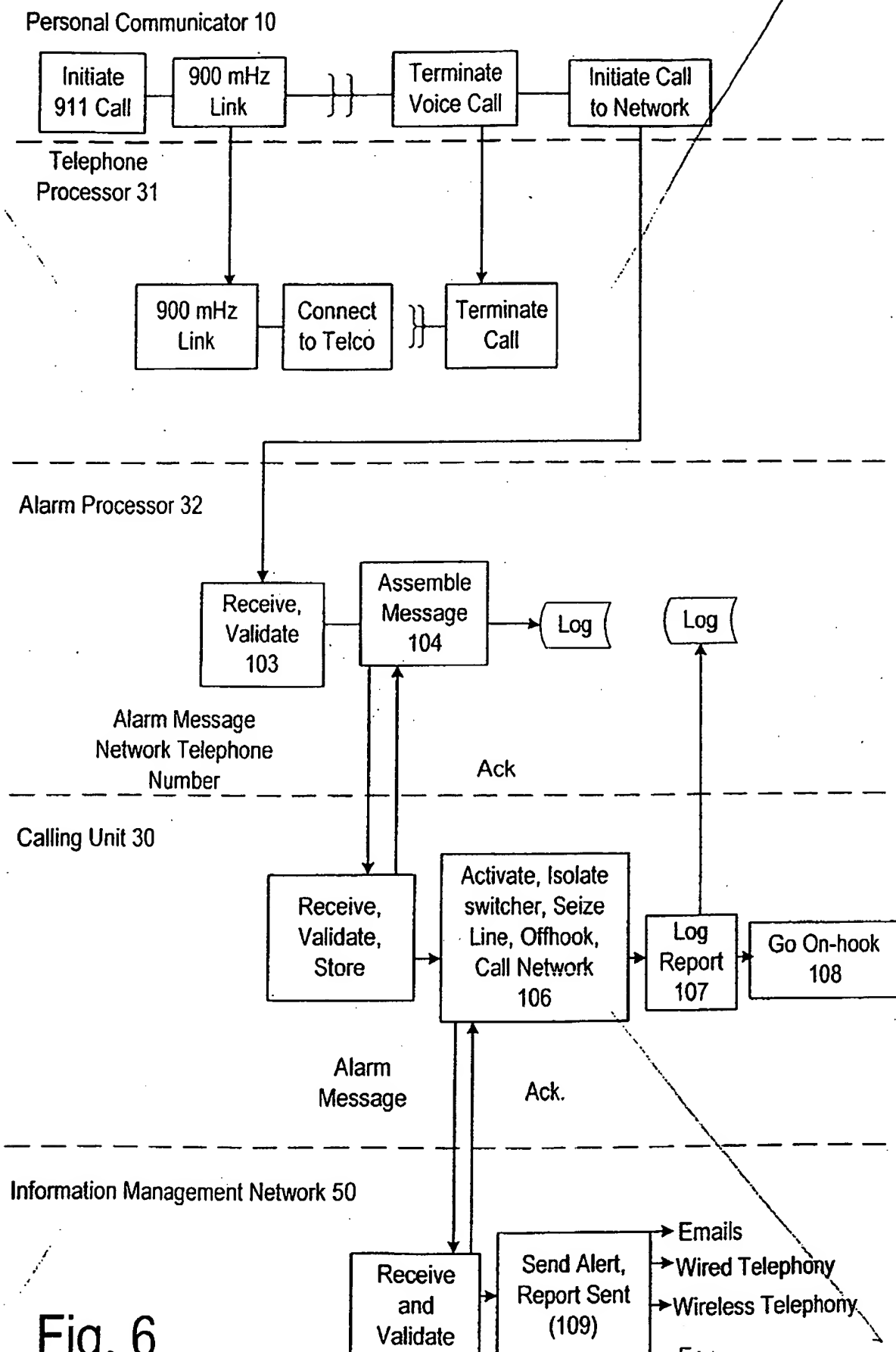


Fig. 6

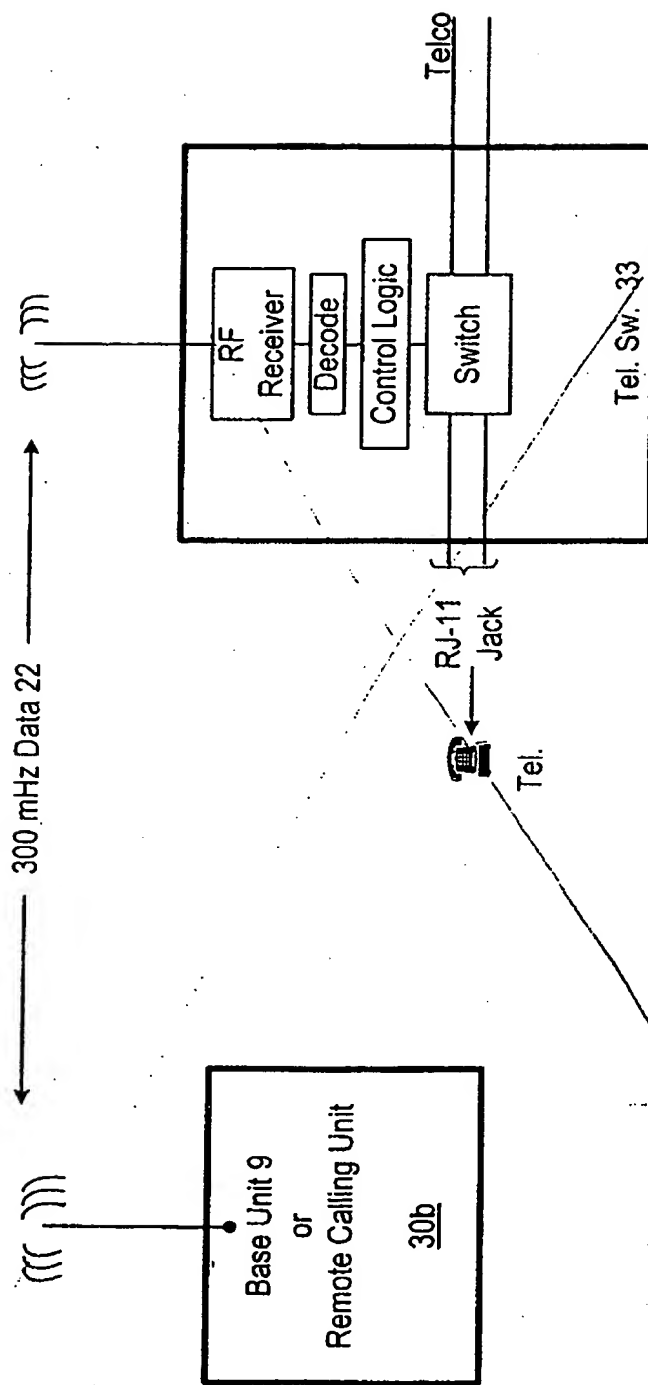
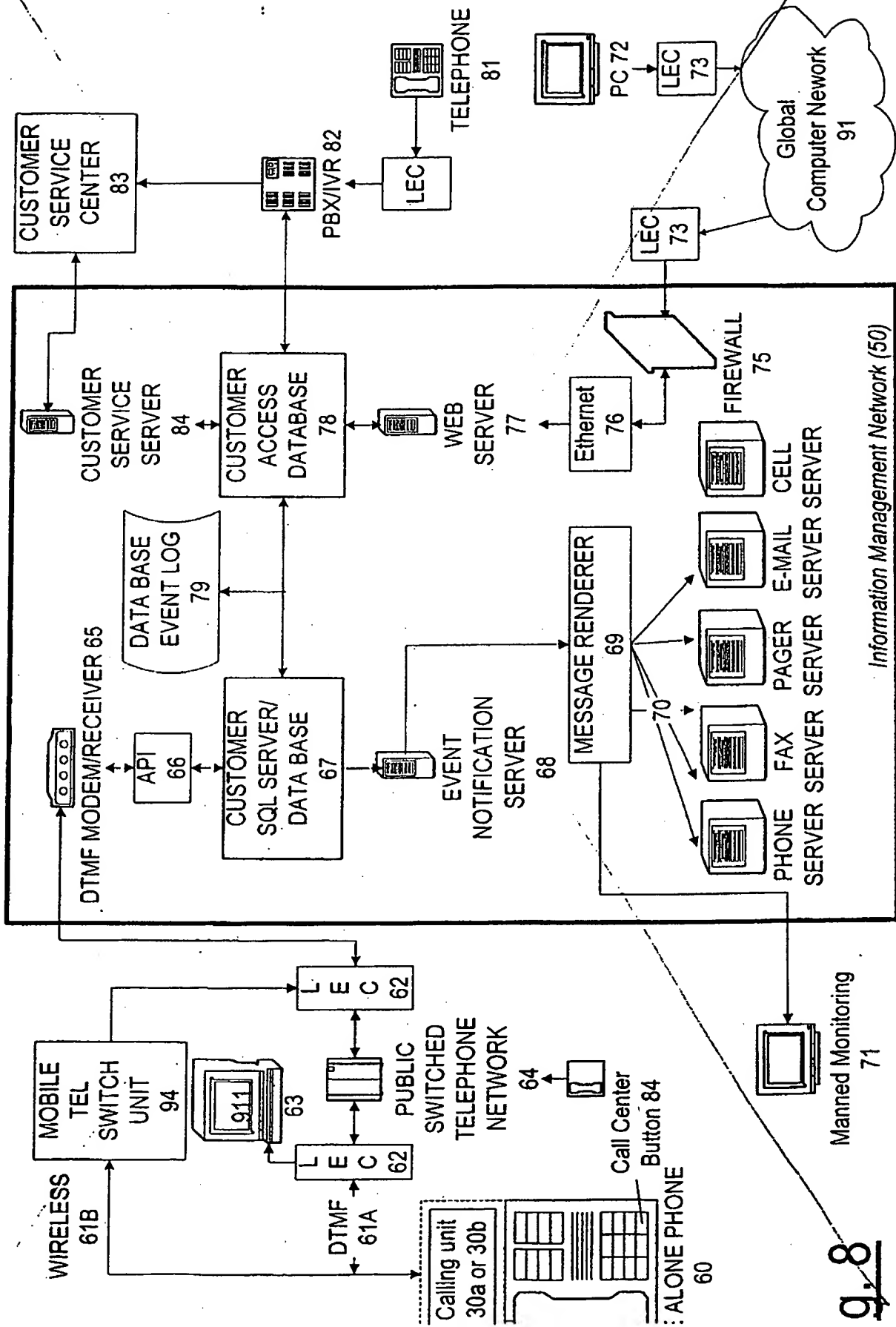


Fig. 7



## FIG. 9A

### CUSTOMER PROFILE INFORMATION

Last Name(20 sp.) First Name(12 sp.) Middle Initial (1 sp.)  
Address  
    Number (8 spaces)  
    Street (25 spaces)  
City(15 spaces) State(2 spaces) Zip (5 spaces - 4 spaces)  
Home Phone Number (10 spaces) Work Number (10 spaces)

### ALARM TEST

#### Contact Method:

Cell Phone _____	Cell Phone Number(15 spaces)
Home Phone _____	Home Phone Number(15 spaces)
Email _____	Email Address(27 spaces)
Fax _____	Fax Number(15 spaces)
Work _____	Work Phone Number(15 spaces)
Pager/Beeper _____	Pager Number(15 spaces)

### MANNED MONITORING

Yes \_\_\_\_\_ No \_\_\_\_\_

If you select Manned Monitoring there will be an additional charge of \_\_\_\_\_ each month for this service.

Manned Monitoring _____	Contact Number (15 spaces)
Police _____	Local Police Number (15 sp.)
Fire Dept _____	Local Fire Department (15 sp.)

### PERSONAL MEDICAL INFO:

Doctor's Name (15 spaces)  
Doctor's Phone Number (15 spaces)  
Blood Pressure Checks(hours to be monitored)(15 sp.)  
Glucose Checks (time of day for check) (6spaces)  
Heart Monitor Yes \_\_\_\_\_ No \_\_\_\_\_  
Time for heart monitor reporting (6 spaces)

## FIG. 9B

### CONTACT LIST

#### Contact 1

Contact Time

All Day: Yes \_\_\_\_\_ No \_\_\_\_\_

Contact time - Begin (2 sp.:2 sp.) to (2 sp.: 2 sp.)

Contact Method:

Cell Phone _____	Cell Phone Number (15 spaces)
Home Phone _____	Home Phone Number (15 spaces)
Email _____	Email Address (27 spaces)
Fax _____	Fax Number (15 spaces)
Work _____	Work Phone Number (15 spaces)
Pager/Beeper _____	Pager Number (15 spaces)

#### Contact 2:

Contact Time

All Day Yes \_\_\_\_\_ No \_\_\_\_\_

Contact time - Begin (2 sp.:2 sp.) to (2 sp.: 2 sp.)

Contact Method:

Cell Phone _____	Cell Phone Number (15 spaces)
Home Phone _____	Home Phone Number (15 spaces)
Email _____	Email Address (27 spaces)
Fax _____	Fax Number (15 spaces)
Work _____	Work Phone Number (15 spaces)
Pager/Beeper _____	Pager Number (15 spaces)

#### Contact 3:

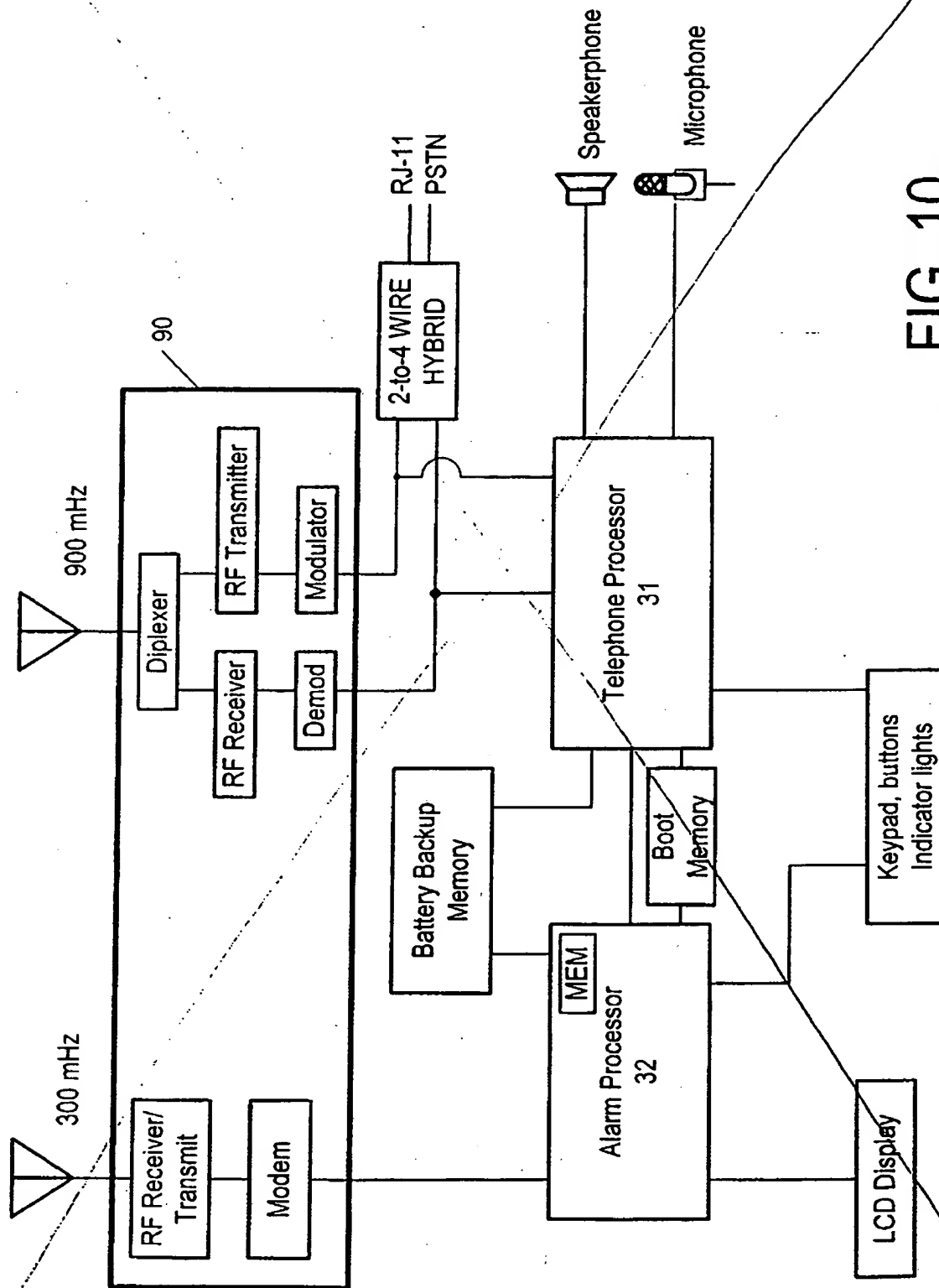
Contact Time

All Day Yes \_\_\_\_\_ No \_\_\_\_\_

Contact time - Begin (2 sp.:2 sp.) to (2 sp.: 2 sp.)

Contact Method:

Cell Phone _____	Cell Phone Number (15 spaces)
Home Phone _____	Home Phone Number (15 spaces)
Email _____	Email Address (27 spaces)
Fax _____	Fax Number (15 spaces)
Work _____	Work Phone Number (15 spaces)
Pager/Beeper _____	Pager Number (15 spaces)



**FIG. 10**



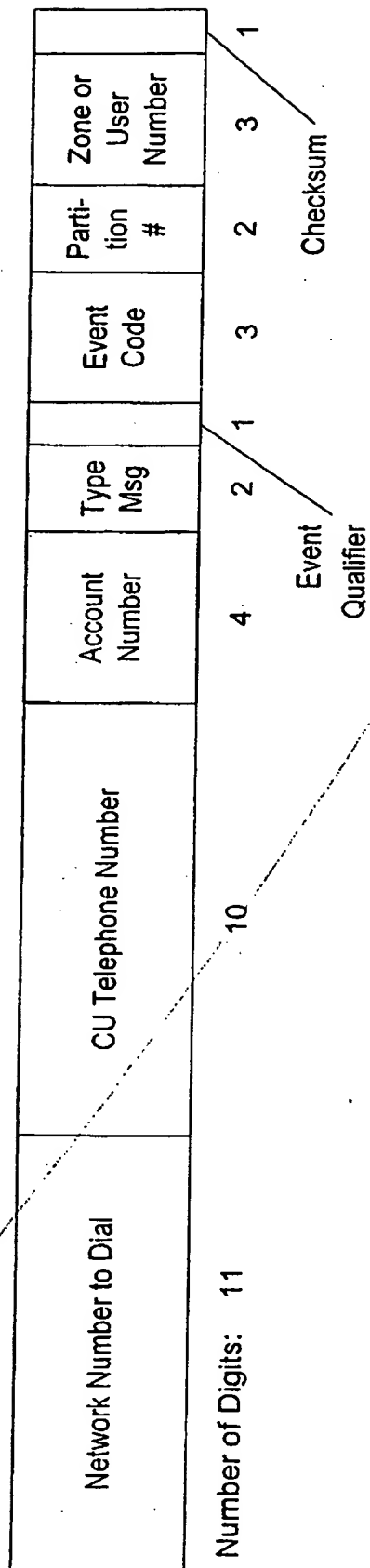


Fig. 11

Item	Number of DTMF Digits	Description
Network Number to Dial	11	The telephone number to be dialed for reporting alarms
Calling Unit Telephone Number	10	The telephone number of the telephone line to which the Calling Unit is connected.
Account Number	4	The user's account number
Type Message	2	Used to identify the message type and format
Event Qualifier	1	Describes whether the event is new, restored, closed, continuing, etc.
Event Code	3	Defines the type of alarm, or trouble, identifies test events, and system configuration changes. Medical event information would be included.
Partition Number	2	Defines the group or partition number.
Zone or User Number	3	Includes the zone number for events or user identification for open/close reports.
Checksum	1	Error detection code.

Fig. 12

## Attachment C

**COPY**

09/714,841  
PRELIMINARY AMENDMENT  
PAGE 39



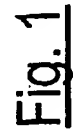
**APPENDIX C: RED LINE DRAWINGS**

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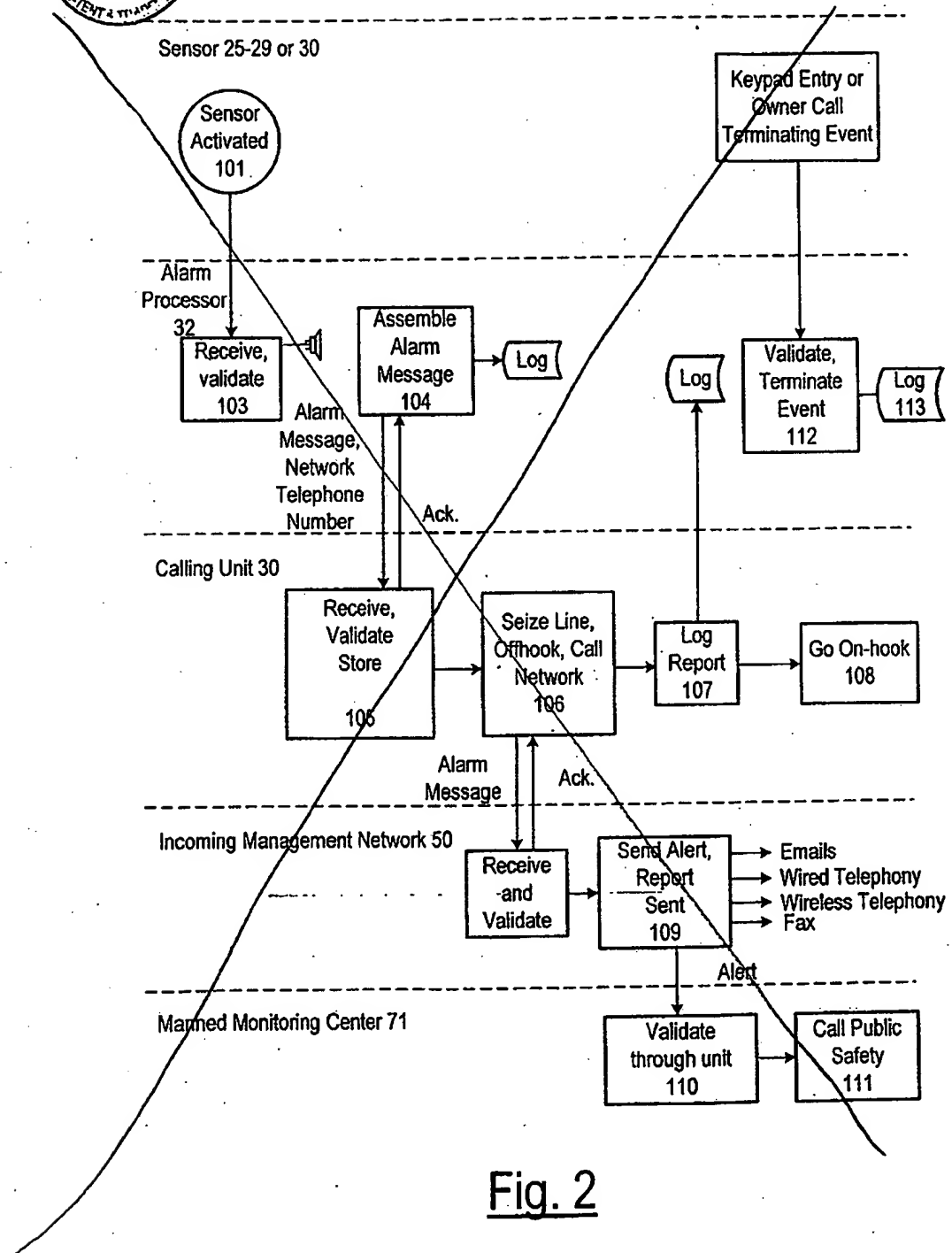
**JAN 09 2004**

**Technology Center 2600**





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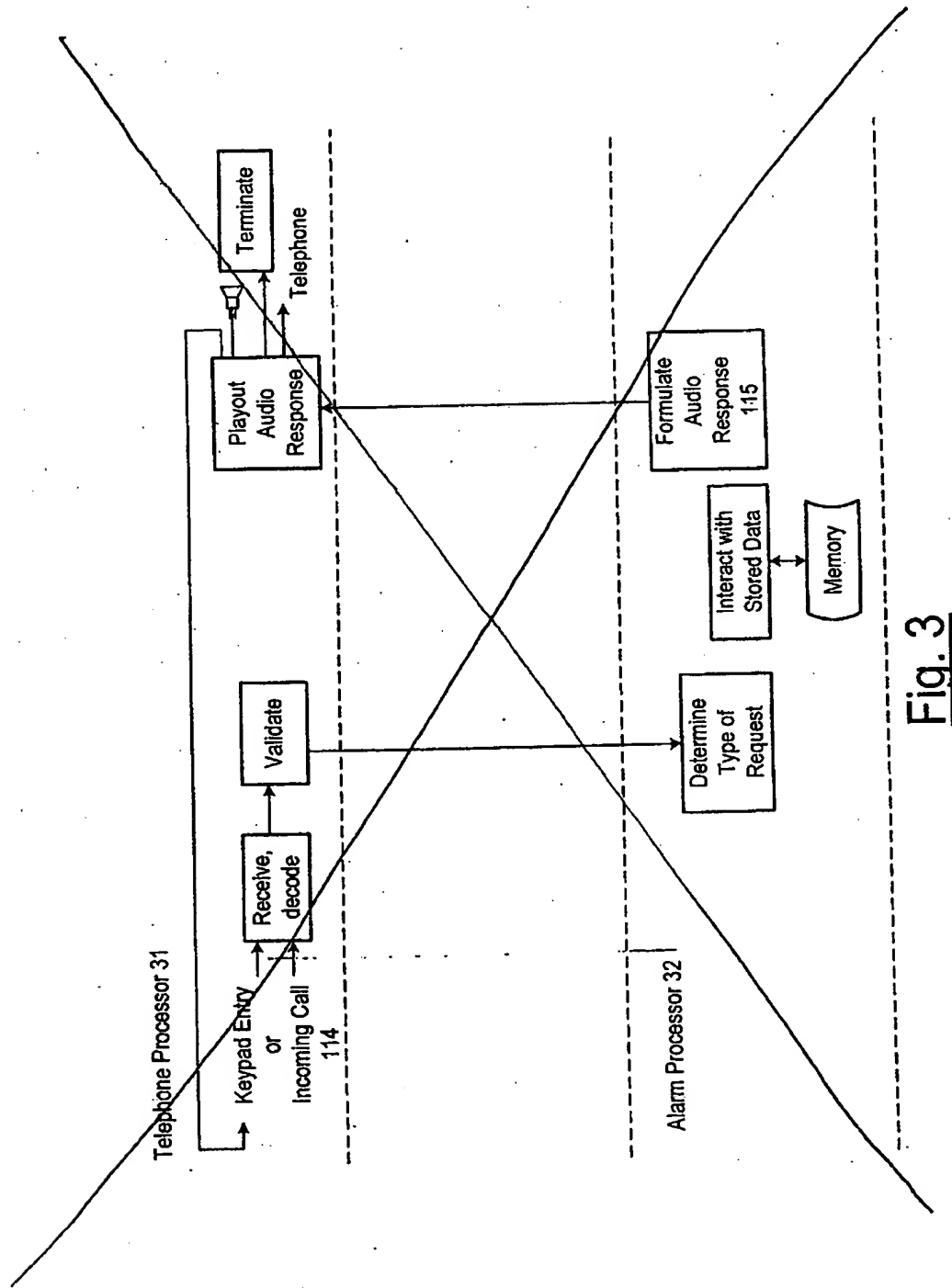
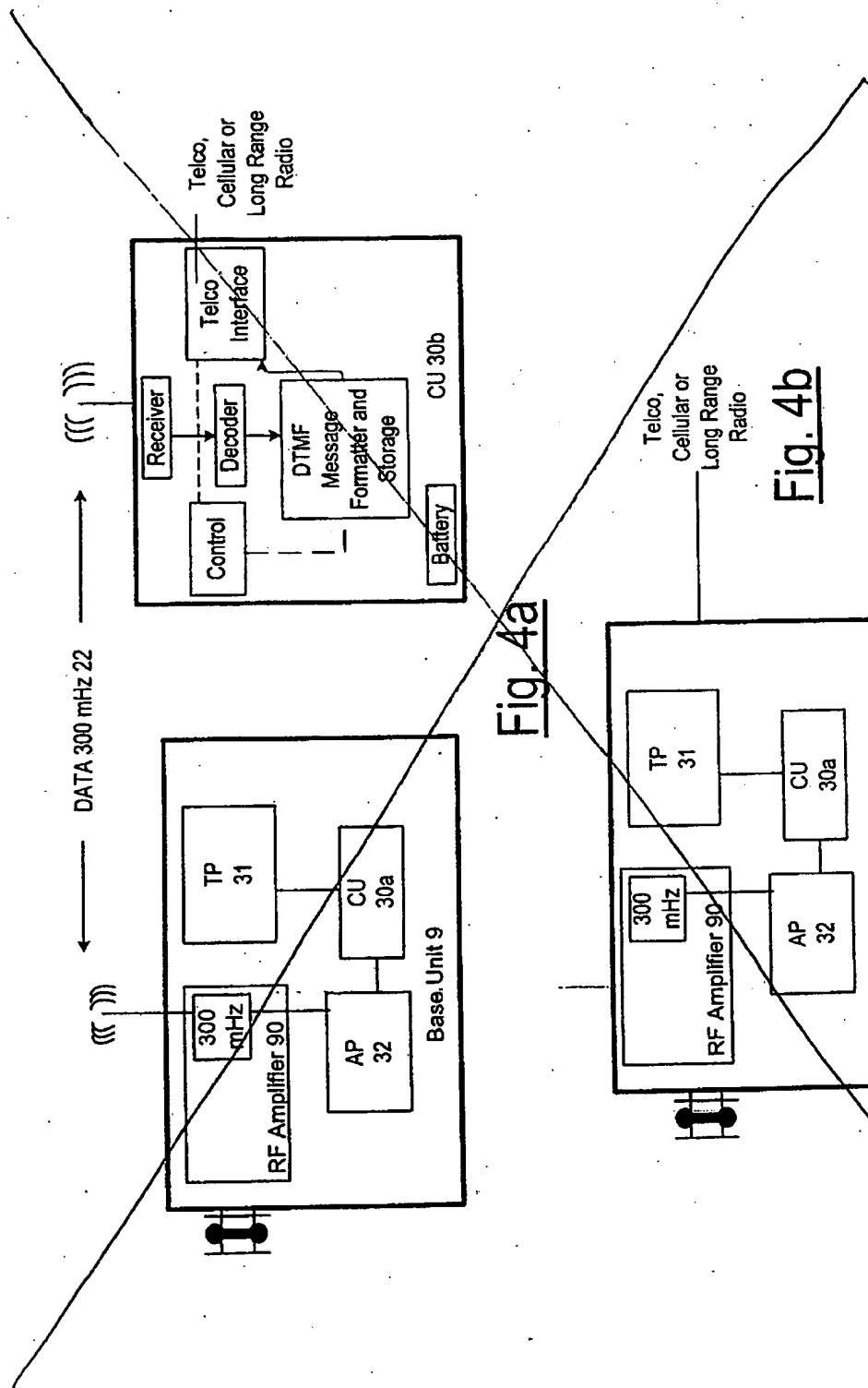


Fig. 3

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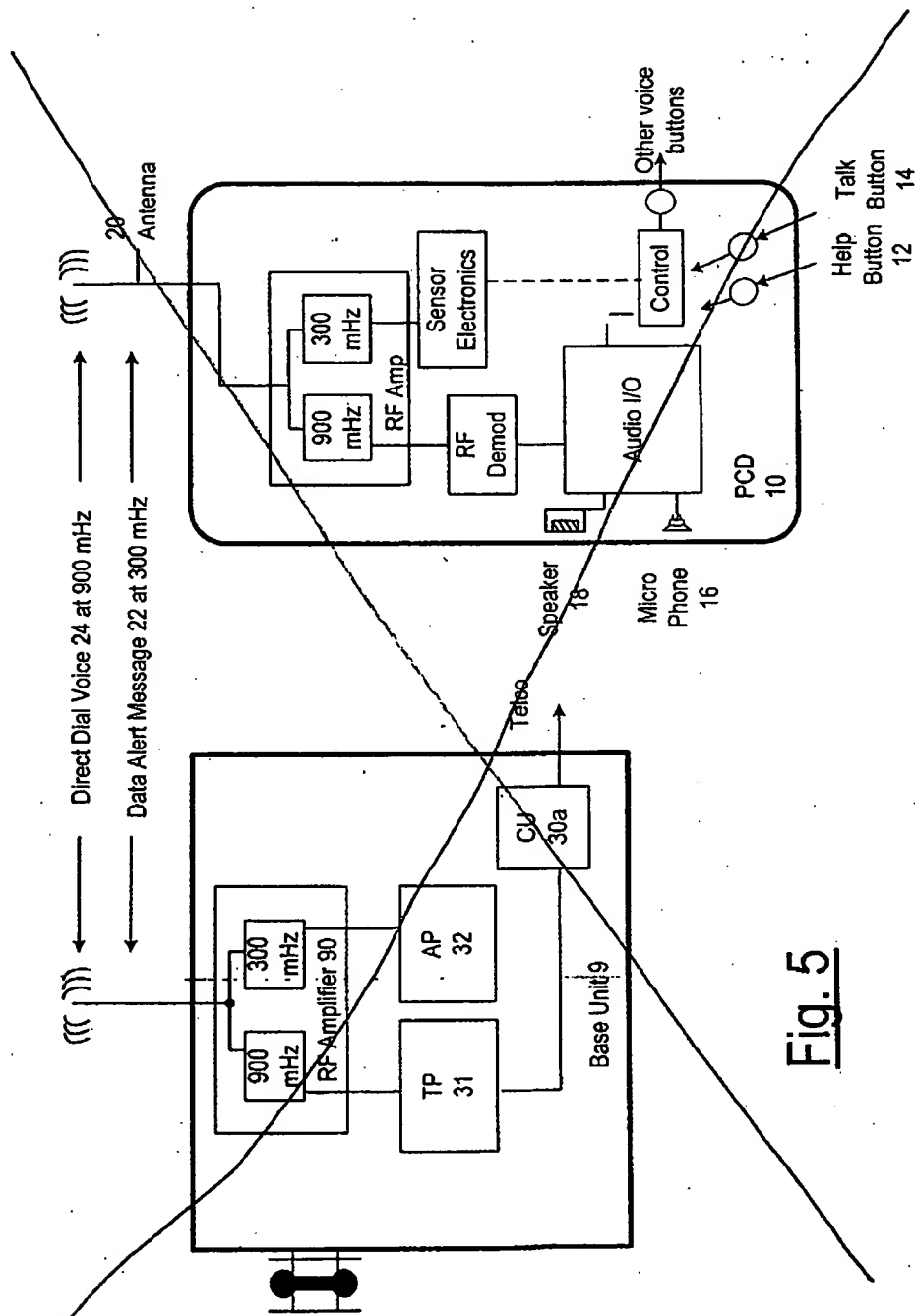


Fig. 5

COPY

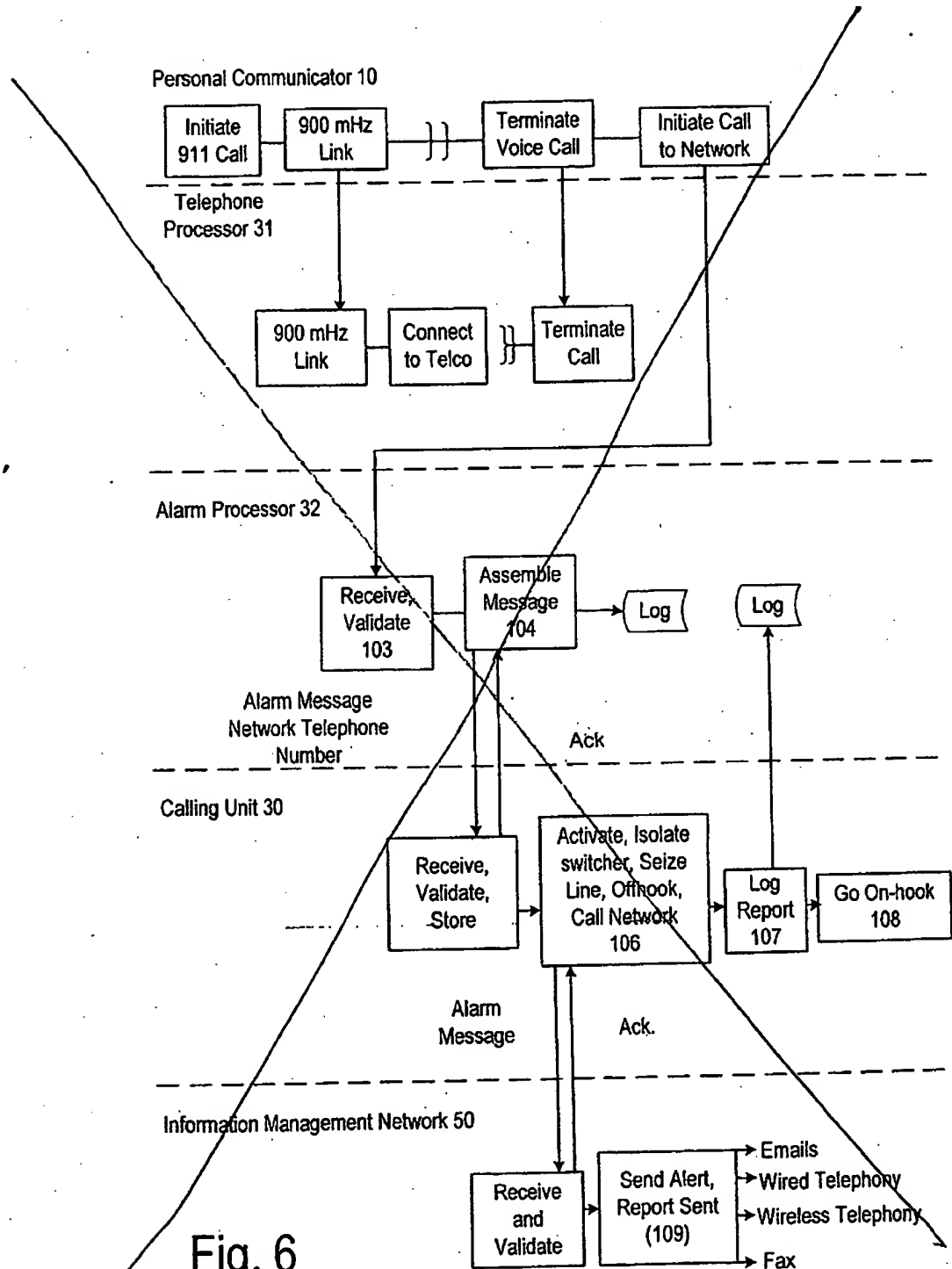


Fig. 6

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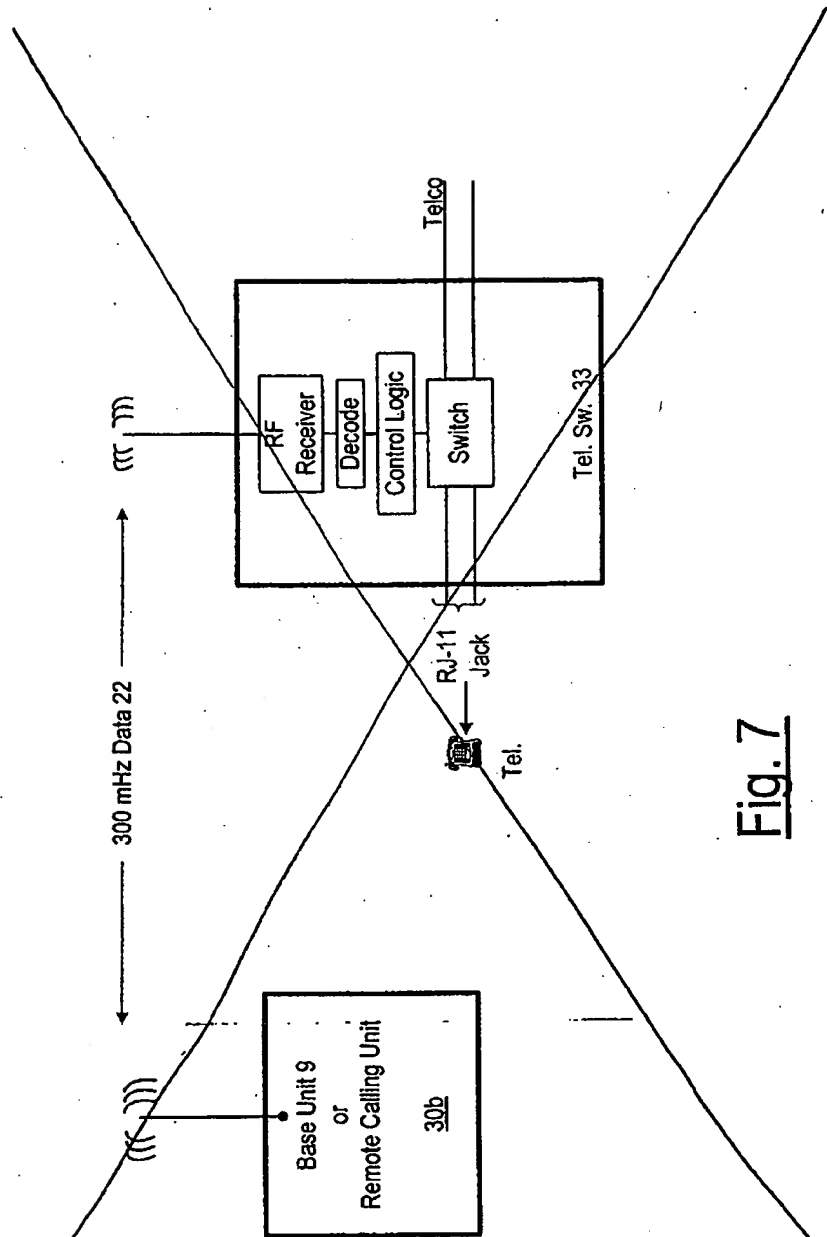


Fig. 7

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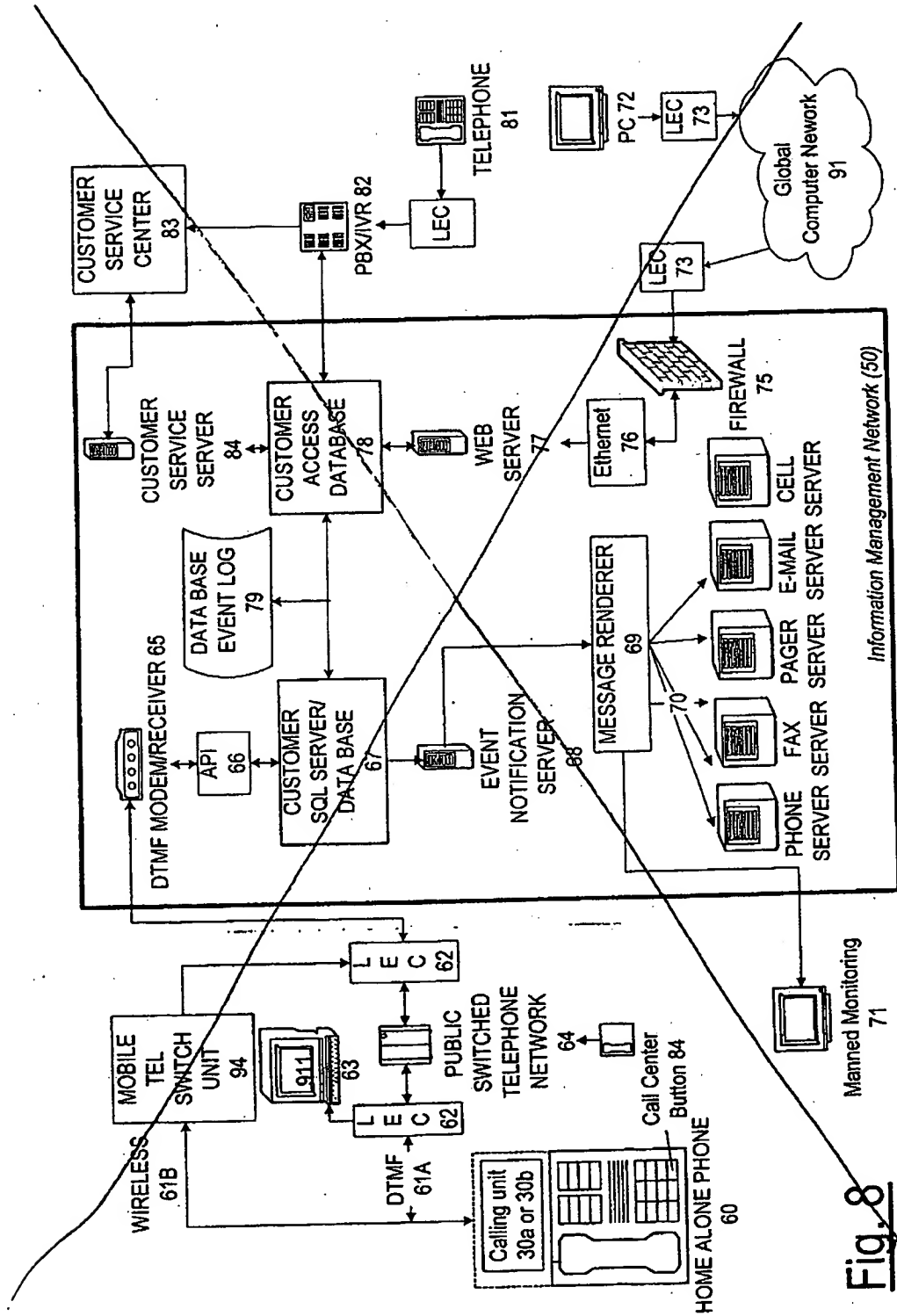


Fig. 8

COPY

## FIG. 9A

### CUSTOMER PROFILE INFORMATION

Last Name(20 sp.) First Name(12 sp.) Middle Initial (1 sp.)  
Address  
Number (8 spaces)  
Street (25 spaces)  
City(15 spaces) State(2 spaces) Zip (5 spaces - 4 spaces)  
Home Phone Number (10 spaces) Work Number (10 spaces)

### ALARM TEST

#### Contact Method:

Cell Phone	Cell Phone Number(15 spaces)
Home Phone	Home Phone Number(15 spaces)
Email	Email Address(27 spaces)
Fax	Fax Number(15 spaces)
Work	Work Phone Number(15 spaces)
Pager/Beeper	Pager Number(15 spaces)

### MANNED MONITORING

Yes \_\_\_\_\_ No \_\_\_\_\_

If you select Manned Monitoring there will be an additional charge of \_\_\_\_\_ each month for this service.

Manned Monitoring	Contact Number (15 spaces)
Police	Local Police Number (15 sp.)
Fire Dept	Local Fire Department (15 sp.)

### PERSONAL MEDICAL INFO:

Doctor's Name (15 spaces)  
Doctor's Phone Number (15 spaces)  
Blood Pressure Checks(hours to be monitored)(15 sp.)  
Glucose Checks (time of day for check) (6spaces)  
Heart Monitor Yes \_\_\_\_\_ No \_\_\_\_\_  
Time for heart monitor reporting (6 spaces)

COPY

FIG. 9B

CONTACT LIST

Contact 1

Contact Time

All Day: Yes \_\_\_\_\_ No \_\_\_\_\_

Contact time - Begin (2 sp.:2 sp.) to (2 sp.: 2 sp.)

Contact Method:

Cell Phone _____	Cell Phone Number (15 spaces)
Home Phone _____	Home Phone Number (15 spaces)
Email _____	Email Address (27 spaces)
Fax _____	Fax Number (15 spaces)
Work _____	Work Phone Number (15 spaces)
Pager/Beeper _____	Pager Number (15 spaces)

Contact 2:

Contact Time

All Day Yes \_\_\_\_\_ No \_\_\_\_\_

Contact time - Begin (2 sp.:2 sp.) to (2 sp.: 2 sp.)

Contact Method:

Cell Phone _____	Cell Phone Number (15 spaces)
Home Phone _____	Home Phone Number (15 spaces)
Email _____	Email Address (27 spaces)
Fax _____	Fax Number (15 spaces)
Work _____	Work Phone Number (15 spaces)
Pager/Beeper _____	Pager Number (15 spaces)

Contact 3:

Contact Time

All Day Yes \_\_\_\_\_ No \_\_\_\_\_

Contact time - Begin (2 sp.:2 sp.) to (2 sp.: 2 sp.)

Contact Method:

Cell Phone _____	Cell Phone Number (15 spaces)
Home Phone _____	Home Phone Number (15 spaces)
Email _____	Email Address (27 spaces)
Fax _____	Fax Number (15 spaces)
Work _____	Work Phone Number (15 spaces)
Pager/Beeper _____	Pager Number (15 spaces)

COPY

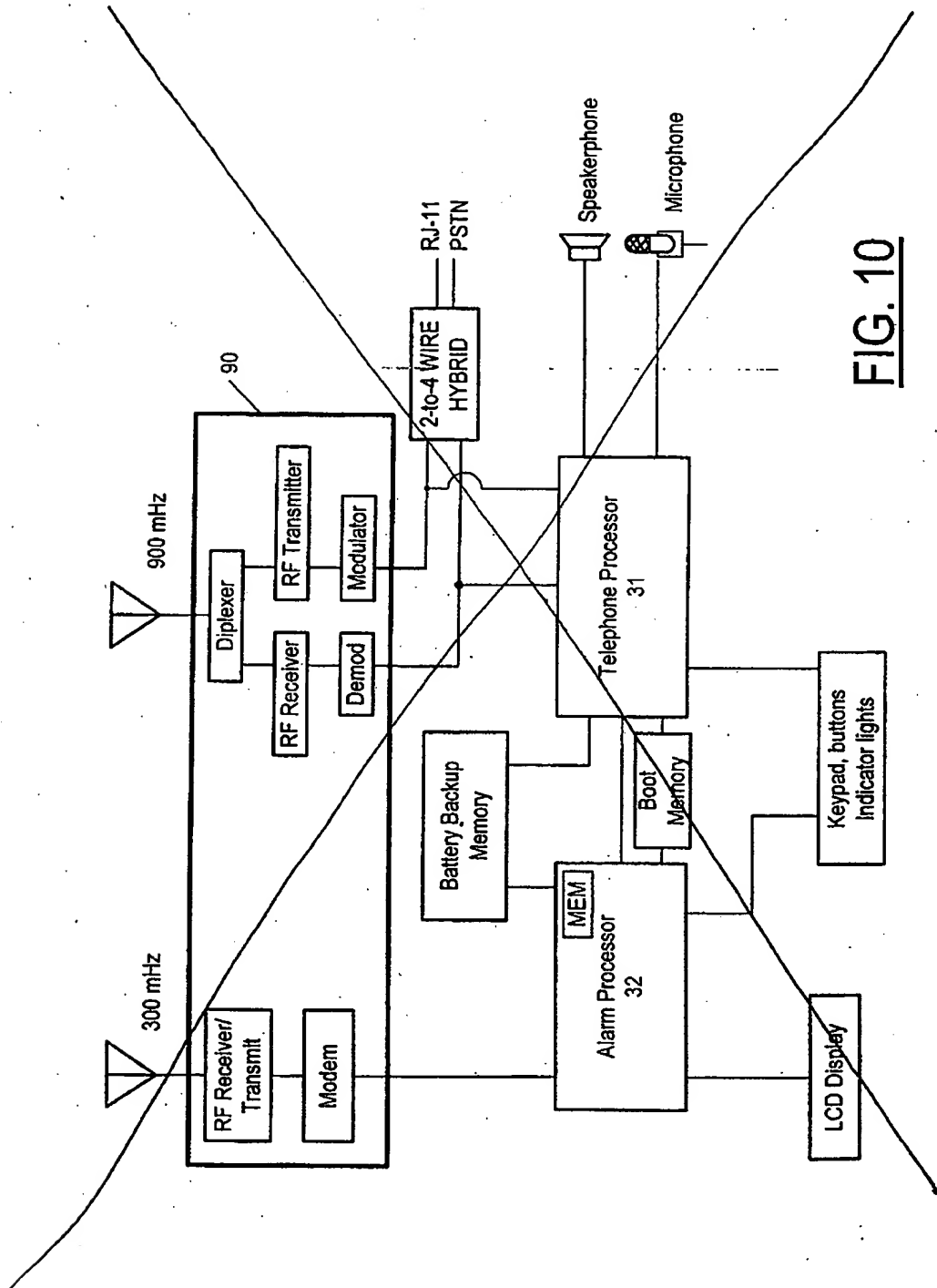


FIG. 10

**COPY**

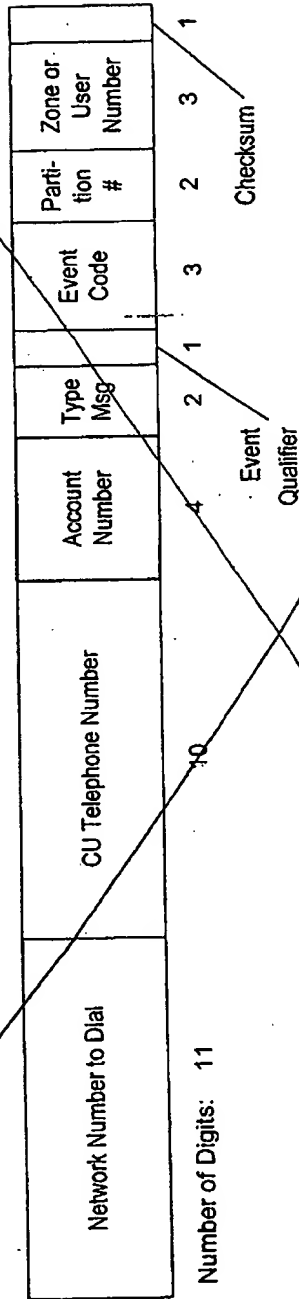


Fig. 11



**COPY**

Item	Number of DTMF Digits	Description
Network Number to Dial	11	The telephone number to be dialed for reporting alarms
Calling Unit Telephone Number	10	The telephone number of the telephone line to which the Calling Unit is connected.
Account Number	4	The user's account number
Type Message	2	Used to identify the message type and format
Event Qualifier	1	Describes whether the event is new, restored, closed, continuing, etc.
Event Code	3	Defines the type of alarm, or trouble, identifies test events, and system configuration changes. Medical event information would be included.
Partition Number	2	Defines the group or partition number.
Zone or User Number	3	Includes the zone number for events or user identification for open/close reports.
Checksum	1	Error detection code.

Fig. 12

## Attachment D



09/714,841

COPY

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Figure 1.

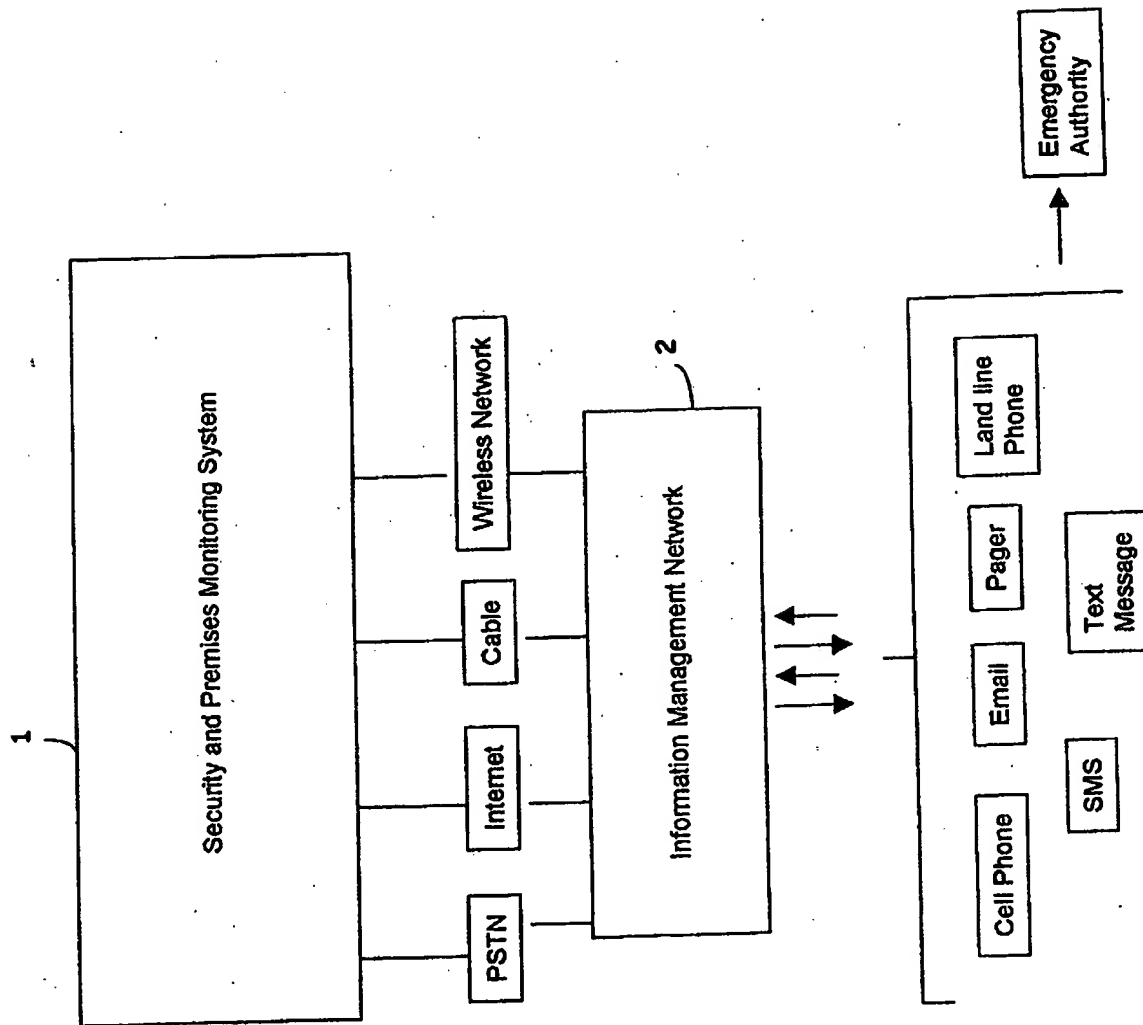


Figure 2.



COPY

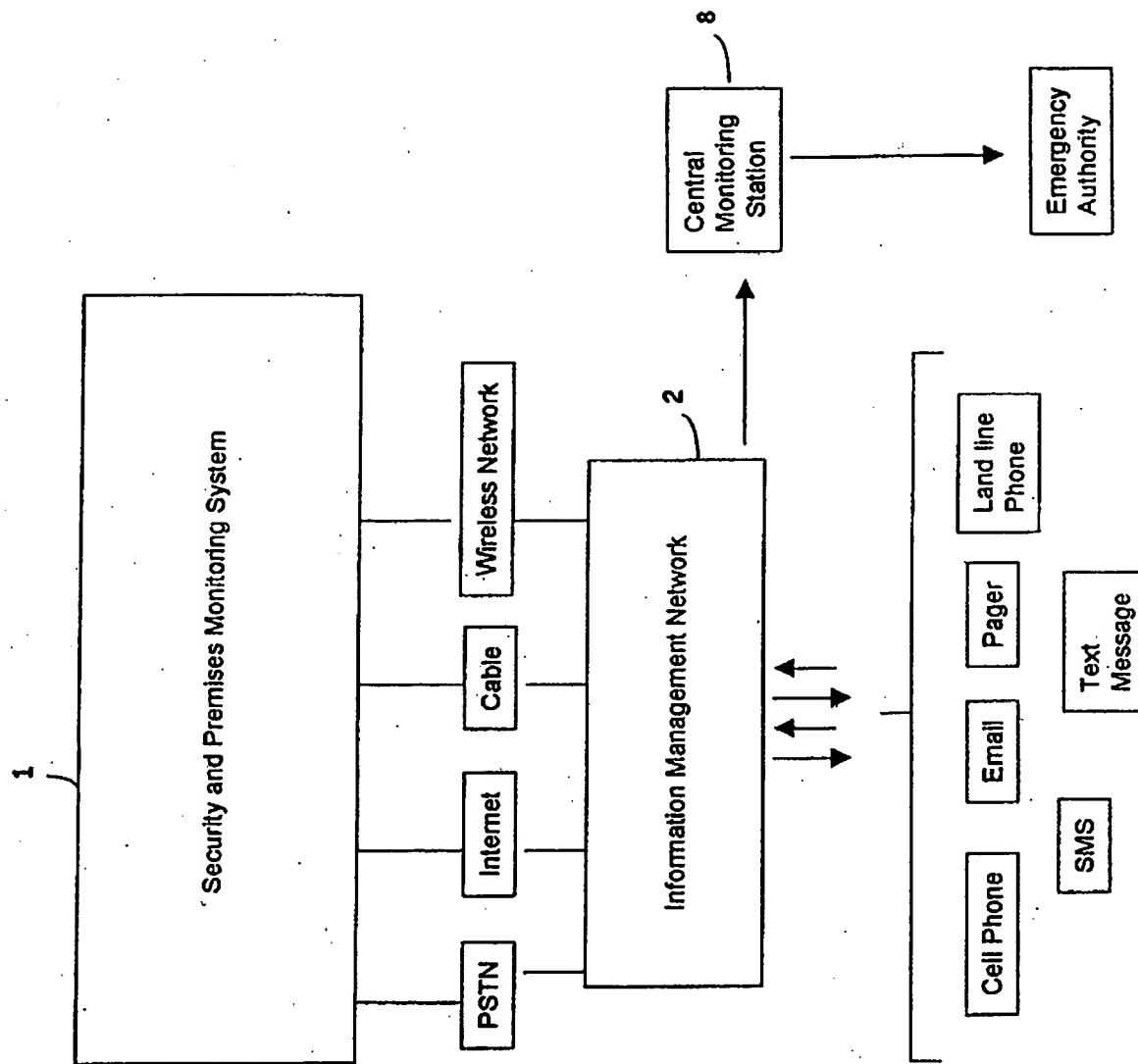
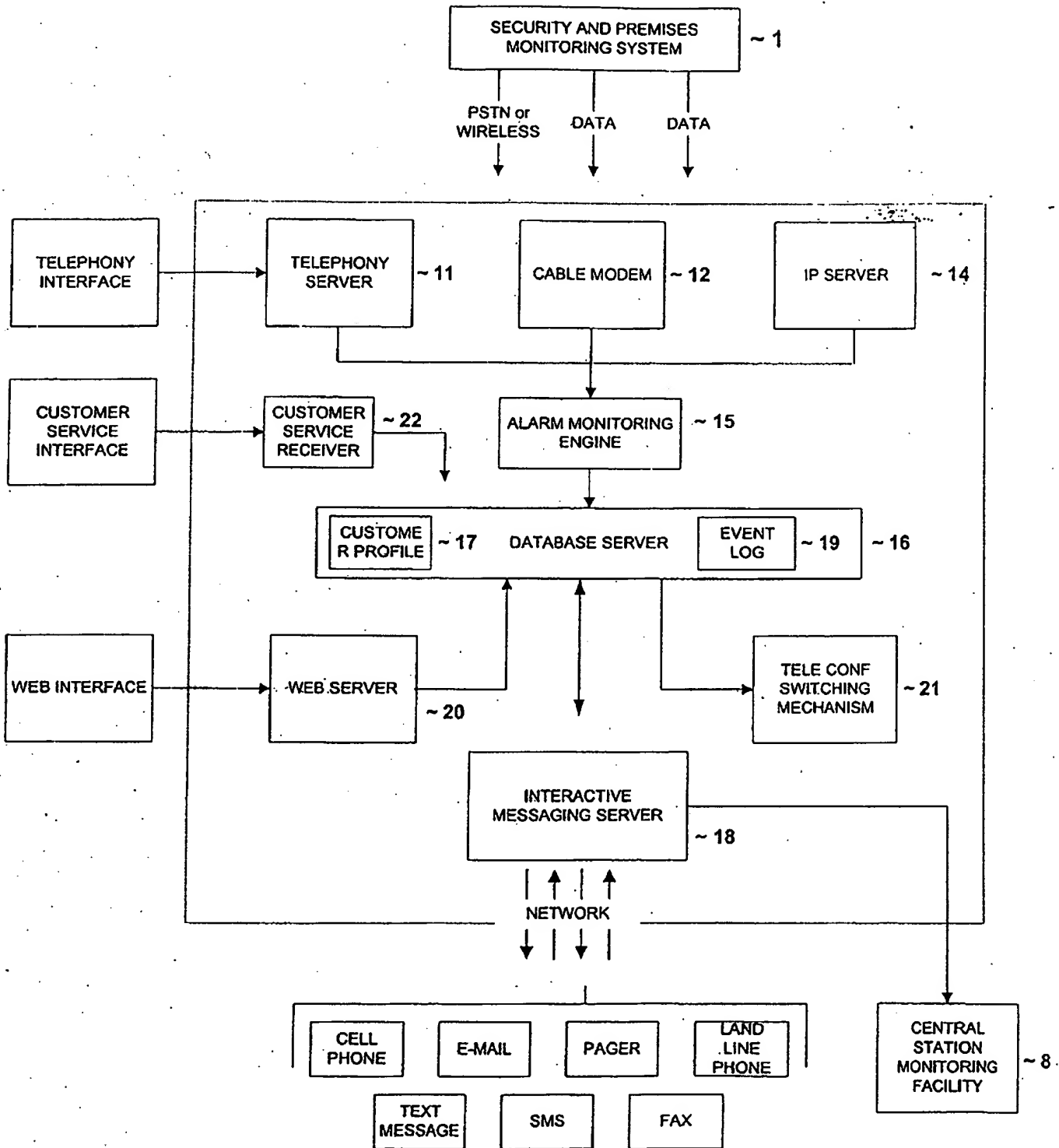
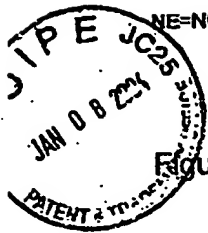


FIGURE 3



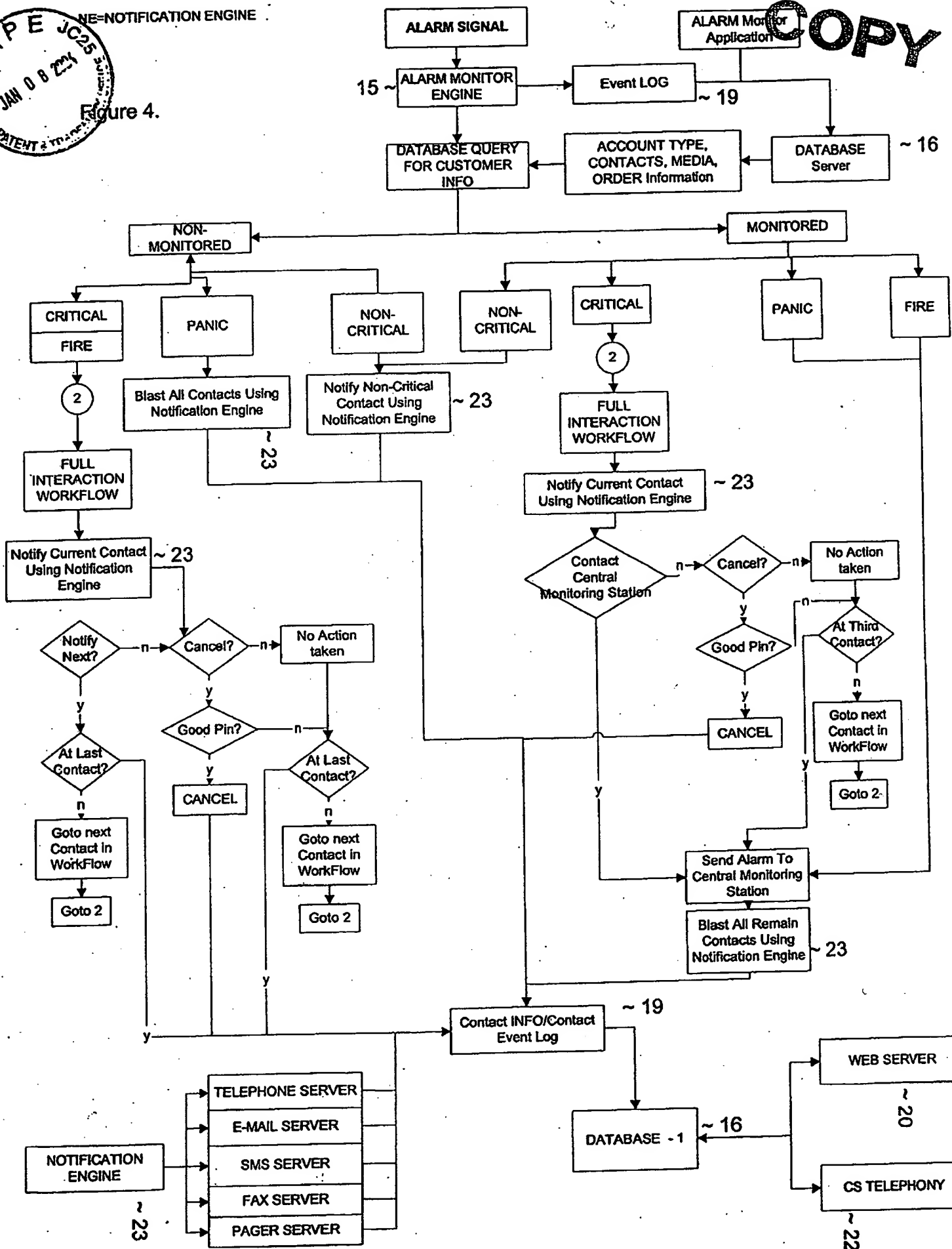
COPY





NE-NOTIFICATION ENGINE

Figure 4.



**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**Page 1 of 1

PATENT NO. : 6,829,478 B1  
APPLICATION NO.: 09/714,841  
ISSUE DATE : December 7, 2004  
INVENTOR(S) : Pamela G. Layton et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the drawings: please replace Figures 3, 4a and 4b with the attached Figures 3 and 4.

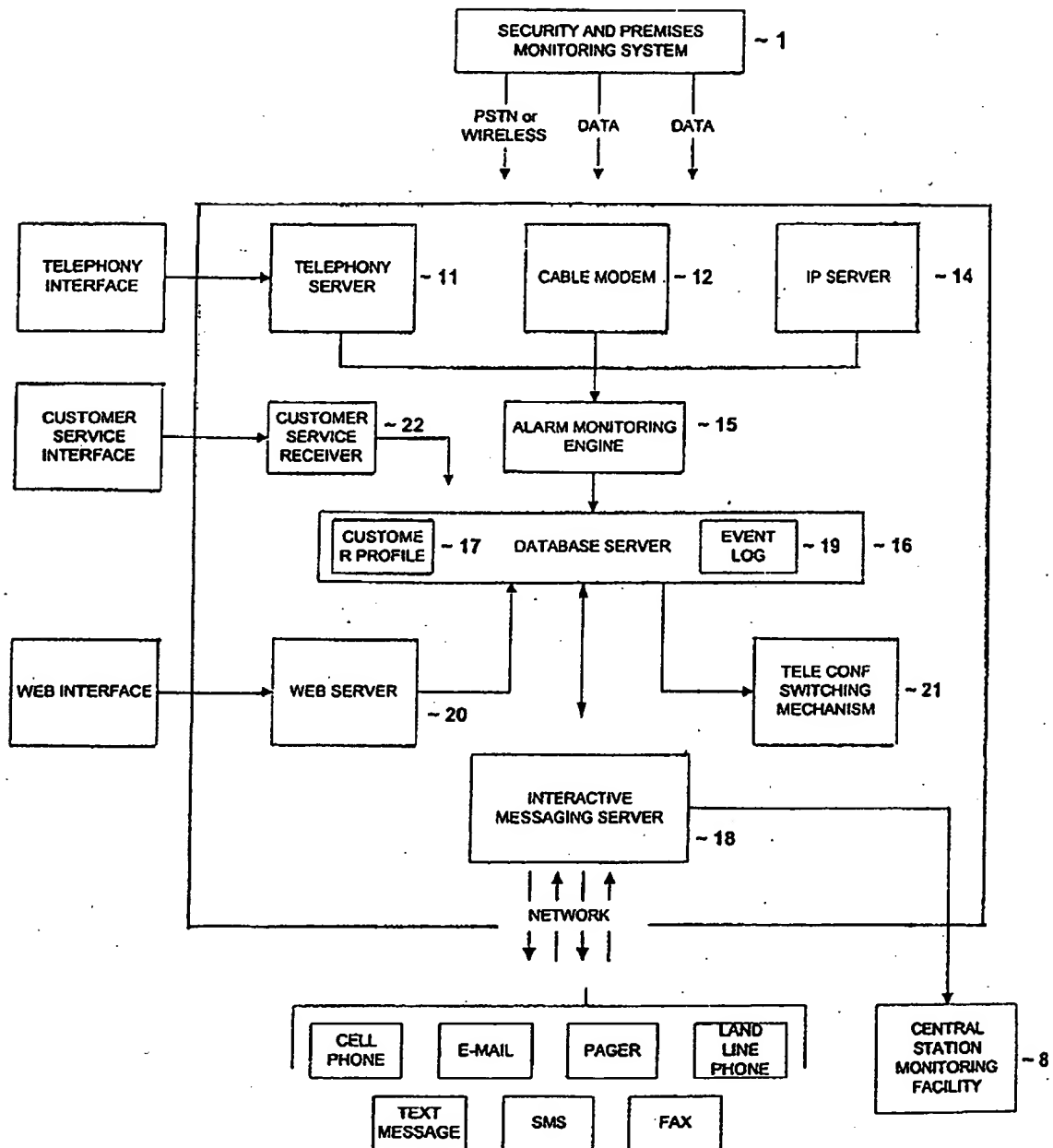
**MAILING ADDRESS OF SENDER (Please do not use customer number below):**

Burns & Levinson LLP  
125 Summer Street  
Boston, MA 02110

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

FIGURE 3





NE=NOTIFICATION ENGINE

Figure 4.

